THE RELATIONAL COMPOSITION OF ENTREPRENEURIAL FOUNDER TEAMS: FORMATION, MEMBERSHIP CHANGE, AND PERFORMANCE

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THE RELATIONAL COMPOSITION OF ENTREPRENEURIAL FOUNDER TEAMS: FORMATION, MEMBERSHIP CHANGE, AND PERFORMANCE

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This dissertation examines the relational composition of entrepreneurial teams and its outcomes. The relational composition refers to a venture team's internal network. The extent to which the team composition depends on one type of social relations rather than another produces different organizational characteristics and bring important implications for its later outcomes. This research particularly focuses on the distinction between family and non-family affiliations and investigates the formation and evolution of such team composition as an input as well as an output. In the first empirical chapter, I examine the role of entrepreneur's gender in the relational composition of venture businesses by focusing both on who creates a team rather than developing a single-owned enterprise, and on who creates a team with family members rather than non-family members. By analyzing venture businesses in the U.S., I find that females are constrained to establishing solo businesses in comparison to males. Also, when they establish an entrepreneurial team, female entrepreneurs tend to utilize family ties rather than work-related ties compared to their male counterpart. The second empirical study examines how the relational composition of venture teams influences its membership change. In this study, I introduce a new typology of venture teams based on the relational composition: family-only teams, non-family teams, and family/non-family mixed teams. Based on this typology, I find that family-only teams have the most stable structure among the three types with the lowest level of team turnover.

On the other hand, non-family teams have the most fluidic form with the highest levels of both member withdrawal and recruitment. Founders in mixed teams are more likely to leave their firms due to internal conflicts between different types of members, and this negative nature of mixed teams hinders a future recruitment of co-founders. Lastly, I shift my focus to the performance aspect of these teams in the final empirical study. Using a competing risks event history modeling, I find that family-only teams show the most successful performance propelled by strong cohesion among team members. On the other hand, mixed teams produce the least successful outcomes due to the faultlines between family and non-family members. All in all, the results reveal the strength of family-only entrepreneurial teams in both maintaining a stable structure and producing a favorable performance outcome, while showing the weakness of mixed teams with a fragile team structure and a negative performance outcome.

BIOGRAPHICAL SKETCH

Yisook Lim graduated with dual Bachelor of Arts degrees in Sociology and French Language and Literature from Yonsei University in South Korea. Ms. Lim also graduated at Yonsei with a Master of Arts degree in Sociology in the sub-field of research in Organizational Sociology. During her time in the Master's program at Yonsei, she was interested in how organizational behavior is shaped by sociological factors. Since the fall of 2012, she has studied in the Department of Organizational Behavior in the School of Industrial and Labor Relations at Cornell University. She received a Master of Science degree in Organizational Behavior in the spring of 2014. In her graduate studies at Cornell, she became more interested in and has pursued her research in organizational behavior as well as entrepreneurship and social networks under the direction of Professors Brian Rubineau, M. Diane Burton and Pam Tolbert. Her earlier research appeared in *Sociological Forum*.

To my parents,

and to my husband,

with love

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CHAPTER 1

INTRODUCTION

Entrepreneurship has been identified as an engine/driving force of the modern economy (Schumpeter 1934). From the rise of the industrial revolution in the eighteenth century to the emergence of information technology in the twenty-first century, entrepreneurs and their activities have served as the main source of technological innovation, the sustaining of employment, and economic development. It is no wonder that the causes and consequences of entrepreneurship have been examined in organization studies as well as sociological, psychological and economic research.

Although the media emphasizes "solo mythology" which represents heroic solo entrepreneurs and their success, most new enterprises are often created by entrepreneurial teams (Kamm, Shuman, Seeger, and Nurick, 1990; Ruef 2010). Since an individual entrepreneur hardly possesses all of the resources, skills, and capabilities required to create and grow his/her new business, s/he often relies on other people with the needed financial or human capital and so cooperates with them as a team (Arregle et al. 2015). As a response to this phenomenon, a growing number of scholars have paid attention to entrepreneurial groups/teams (Forbes et al. 2006; Ruef 2010; Ruef, Aldrich, and Carter 2003; Yang and Aldrich 2013), and placed an emphasis on venture team functioning and performance comparison to single-owner firms (Cooper and Daily 1997; Ensley, Pearson, and Amason 2002; Klotz, Hmieleski, Bradley, and Busenitz 2014). Relatively speaking, the phenomenon of entrepreneurial team formation lags behind in the research (see Aldrich, Carter, and Ruef 2004); this ignorance is caused both by the difficulty to study emerging teams and by the

tendency that organizational behavior research on teamwork has focused heavily on existing work teams (Forbes et al. 2006)

Recent research on entrepreneurial team formation (and composition) provides two main explanations; one is instrumental and strategic, and the other is interpersonal and emotional (Forbes et al. 2006). First, the strategic approach considers entrepreneurial team formation as instrumental as well as rational decision-making (Kamm and Nurick 1993). According to Ucbasaran, Lockett, Wright, and Westhead (2003), for example, an entrepreneurial team is *a bundle of resources*; the leading founder fills the identified gaps between possessed resources and needed resources. Therefore, this view focuses on whether prospective team member(s) can offer the best supply of critical resources or skills to venture creation (Forces et al. 2006).

Second, the social psychological approach of entrepreneurial team formation views the phenomenon as a result of interpersonal attraction based on similarity-attraction (Forbes et al. 2006; Ruef, Aldrich, and Carter 2003). Individuals prefer to interact with others who share similar values, beliefs, preferences, and social/demographic attributes (Lin 1995); this is because similarity decreases psychological discomfort (Monge and Contractr 2003). Forbes et al. (2006) suggest homophily as the underlying mechanism of entrepreneurial team formation. Scholars of this view find that homophily has the most pronounced effect on entrepreneurial team formation and composition (Ruef, Aldrich, and Carter 2003; Steffens, Terjesen & Davidsson 2012).

Although this social psychological approach sheds light on interpersonal attraction and emotion, the main focus lies in homophily based on demographic/social characteristics such as age, gender, education, prestige, social status, tenure, and occupation; it still

generally understudies team formation based on social relationships among members and how it is associated with team outcomes. This relational aspect of venture team configuration may have a significant influence on team processes and outcomes since each type of social relationship may have distinctive characteristics in terms of tie strength (Granovetter 1973), relationship quality (Coleman 1988), and relationship utilities (Lechner, Dowling and Welpe 2006).

This relationship-focused team composition is particularly important in entrepreneurial teams because the mechanisms to compose founding teams may be different from those for existing work teams. Previous research on existing work teams has focused on complementary human capital such as functional/skill heterogeneity and demographic characteristics (Forbes et al., 2006). This may be because relational composition is less important in the formation and composition of an existing work group; an existing work team tends to be formed by the organization to which it belongs, and thus, is composed of employees in the organization. However, in entrepreneurial teams, the process of membership composition is voluntary and autonomous (Ruef et al., 2003; Yang and Aldrich, 2014). Members of venture teams gather on their own to pursue a new firm creation rather than being assigned by an organization external to the team. Also, when individual entrepreneurs seek their collaborators and partners, they tend to rely on personal social relationships to facilitate their activities. Thus, the relations between members of venture teams are likely to be based on preexisting social ties such as family, friends, or previous co-workers.

The relational composition of venture teams is important both in the empirical and theoretical senses. Entrepreneurs often create new firms with their family members, close

friends or colleagues whom they met in previous educational or vocational organizations. Team processes and outcomes may vary depending on whom entrepreneurs make venture teams with. This difference in the relational composition of founding teams may yield to different entrepreneurial outcomes. New organizations are imprinted with structural conditions of organizations during the founding period (Stinchcombe 1965), and the retention of these characteristics set by the initial founders has the strongest and most long-lasting effects on organizations (Aldrich and Auster, 1986; Beckman, Burton, and O'Reilly2007; Forbes et al., 2006; Hellerstedt and Aldrich 2008). The initial arrangement of social relationships between team members may determine team processes such as their ways to communicate, collaborate, and make decisions. Hence, the initial arrangement of social relationships between team members may have continuing and significant effects on the enterprise.

In this regard, this dissertation research examines the relational composition of entrepreneurial teams and their outcomes. During the process of forming entrepreneurial teams, the choice of members is inevitably dependent upon entrepreneurs' structural opportunities for social contact (Ruef, Aldrich, and Carter, 2003). In other words, preexisting social ties bring a constraint as mentioned above. Previous literature has broadly categorized these preexisting ties into three categories: family members, friends and acquaintances, and strangers (Aldrich, Elam, and Reese 1996; Granovetter 1973; Ruef et al. 2003). The extent to which the team composition depends on one type of relationship rather than another may produce different organizational characteristics and bring important implications for its later outcomes.

In this dissertation, I focus on family vs. non-family affiliations in entrepreneurial

founder teams and investigate the formation and evolution of such team composition as an input as well as an output. Since family is a distinctive institution which bonds its members with the highest levels of trust, norms, and values, family involvement in a business may demonstrate different behavioral patterns from non-family businesses (Craig et al. 2009; Webb, Ketchen, and Ireland 2010). For example, Jack (2005) finds that family members offer the most accessible and stable support for entrepreneurs, and they easily recognize entrepreneurs' needs and interests via frequent interaction. Also, family ties represent an important and constant pipeline of resources and support for entrepreneurs in creating and developing new enterprises (Aldrich and Cliff, 2003; Anderson, Jack, and Dodd 2005; Birley 1986; Hite and Hesterly, 2001). Meanwhile, family ties may present a trade-off; research also suggests that the resources which family ties provide tend to be redundant, to overlap, and to bring inward-focused networks (Hite and Hesterly, 2001; Jack 2005; Renzulli, Aldrich, and Moody, 2000). These unique and distinctive traits can facilitate the study of how the relational composition of entrepreneurial teams has an effect on venture team processes and outcomes.

With a focus on the relational composition of entrepreneurial teams, this dissertation is composed of three empirical studies. In Chapter 2, I investigate the formation of venture founder teams and their relational composition. In particular, I examine the role of entrepreneurs' gender in the ownership structure of their businesses by focusing both on who creates a team rather than developing a single-owned enterprise, and on who creates a team with family ties rather than non-family members. In social network and social capital literature, gender has long been discussed as an important dimension associated with the pattern of making and maintaining ties; females tend to have small and family-dominated

networks while males have larger and heterogeneous ones (Moore 1990; Lin 2000; Aldrich 1989; Greve and Salaff 2003; Klyver 2011). Moreover, entrepreneurship literature has documented the significant gender-based differences in diverse entrepreneurial behavior because their networks are small, mainly composed of family members (Aldrich 1989; Greve and Salaff 2003; Klyver 2011), and have more required roles and responsibility inside the family (Carr 1996). In addition, as to find a more detailed mechanism, I decompose non-family ties into non-work related friends and co-workers whom entrepreneurs met in professional organizations. This helps me to identify whether there is a difference in the probability of creating a venture team between women and men, and if so, how and why female entrepreneurs rely on certain relationships rather than others when forming a venture team.

In Chapter 3, I illuminate whether the relational composition of an entrepreneurial founder team influences its membership change/team turnover over time during the nascent stage. This research considers this relational component as a team's structure which constrains the subsequent behavior of entrepreneurial teams. To examine the role of the relational composition of entrepreneurial teams in team turnover, I conceptualize and introduce a new typology of entrepreneurial teams based on social relationships among founders: family-only teams, mixed teams and non-family teams. Family-only teams are venture teams exclusively composed of family ties while non-family teams are only composed of non-family ties. While mixed teams have both family and non-family ties. This typology goes beyond the conventional dichotomy between family and non-family business which defines family firms as those businesses owned and operated by two or more family members (Arregle et al. 2007; James 1999; Stewart and Hitt 2012; Upton and Petty 2000).

By considering mixed teams separately, I expect to identify whether the co-existence of different social ties in one team brings unique and distinctive characteristics and also whether these traits lead to different outcomes. In this chapter, two indicators of membership change are examined: member exit of an existing member and member entry of a new member. Although previous literature viewed team turnover as a strategic behavior in accordance with the changing need for skills and resources, this research sheds light on an important but overlooked structure of venture teams: the relational composition. By drawing on the literature on team cohesion and within-group conflict/faultlines, this study develops and tests hypotheses on the association between the relational composition and membership change.

In Chapter 4, I examine whether and how the relational composition as an initial structure of a venture team is associated with its performance outcomes. Furthermore, this study explores the effect of the interaction between the relational composition and membership change, since membership change is directly linked to team processes related to teamwork and team effectiveness. The operationalization of the relational composition follows the typology introduced in Chapter 3: family-only teams, mixed teams, and non-family teams. In this research, two performance outcomes are investigated since it utilizes the dataset of nascent entrepreneurial teams: venture emergence and team disbanding. Venture emergence refers to a business state where nascent entrepreneurial teams achieve operating status so that they depart from the nascent stage; thus it represents a successful outcome for nascent businesses. On the other hand, team disbanding indicates that nascent teams discontinue entrepreneurial activities because of continuous underperformance; thus it represents a business failure. Utilizing a theoretical framework that focuses on team

cohesion and conflict similar to that in Chapter 3, I verify the hypotheses that predict the effect of the relational composition and its interaction with membership change on two venture outcomes.

In Chapter 5, I discuss the contribution that the findings of this dissertation make in the entrepreneurship literature. In this concluding chapter, I suggest that this research expands our understanding of start-up teams by illuminating the formative stage of entrepreneurial teams. The results of my analyses imply that the social relational dynamics of nascent entrepreneurial teams structure the way that these teams perform afterwards. Regarding social relationships, this study provides a new typology in which entrepreneurial teams are classified into family-only teams, non-family teams, and mixed teams. Using this new typology, this dissertation shows that the initial relational composition heavily influences the stability and performance of teams. Moving beyond the family/non-family dichotomy, this study provides a more nuanced understanding of the critical role that family connections play in nascent businesses. I conclude by emphasizing how the combined results of the dissertation have important implications to further our understanding of the formation, stability, and performance of entrepreneurial firms.

CHAPTER 2.

THE ROLE OF GENDER IN THE OWNERSHIP STRUCTURE OF NASCENT BUSINESSES

2-1. Introduction

How does an entrepreneur's gender influence the ownership structure of entrepreneurial businesses? Previous research on women's entrepreneurship has focused on how the activities of entrepreneurs are either enabled or constrained by the entrepreneur's gender (de Bruin, Brush, and Welter 2007; Jennings and Brush 2013). Not only do females face limited opportunities to found their own businesses compared to males (Gupta et al. 2009; Hughes 2003), but once they launch firms, female-led businesses are more likely to suffer from a lack of available resources. Past studies have suggested that female entrepreneurs tend to open businesses with lower initial funding compared to their male counterparts (Asos, Isaksen, and Ljunggren 2006; Boden and Nucci 2000; Coleman 2000). Also, studies have shown that female entrepreneurs are less likely to appropriate financing provided by financial institutions than male counterparts (Carter et al. 2007). As a consequence, on average female-led businesses tend to be smaller in organizational size, lower in assets and profits, and weaker in performance (Fairlie and Robb 2009; Robb 2002; for mixed results on performance gap, however, see Robb and Watson 2012).

While past studies have emphasized the role of gender in the decision-making and practices of entrepreneurs, what has not been systematically examined until now is the gendered processes of how entrepreneurial businesses are organized at the formative stage.

As Jennings and Brush have suggested (2013:671), past studies have rarely explored whether female and male entrepreneurs differ in the organization of their businesses. This is a serious oversight, when the survival and performance of businesses is heavily influenced by the initial structuring of organizations (Boden and Nucci 2000). To fill this lacuna, I examine the influence of an entrepreneur's gender on the ownership structure of nascent firms that are in preparation for launch. This study investigates whether and, if so, how the formation of entrepreneurial businesses is influenced by the gendered social system.

The ownership structure of firms studied in this research is usually determined in the formative stage, even though it changes over time. In launching businesses, entrepreneurs should decide either to establish a solo enterprise or to form an entrepreneurial team with partners. While in principle this decision should be made on the basis of strategic calculation, the formation of co-founder relationships is constrained by the number and type of people that entrepreneurs have already known. In other words, entrepreneurs' decisions to find a co-founder, and to seek external financial support, are restricted by the preexisting social capital that they maintain (Aldrich, Elam, and Reese 1996; Ruef et al. 2003; Ruef 2010).

Regarding social capital, previous literature has suggested that significant differences exist between males and females (Aldrich 1989; Greve and Salaff 2003; Klyver 2011; Lin 2000; Moore 1990). Gender-based differences exist both in terms of network size and composition (Campbell and Rosenfeld 1985; Lin 2000). In particular, past studies have reported that women's core networks are more likely to be composed of family members rather than co-workers, in comparison to those of men (Moore 1990; Lin 2000). Recent literature on entrepreneurship has also noted that the social capital of female entrepreneurs is

smaller and less diverse than that of males (Cromie and Birley 1992; Greve and Salaff 2003; Klyver 2011; Renzulli et al. 2000).

Building upon the literature of gender, social capital, and entrepreneurship, I examine how female entrepreneurs differentially make co-founder relationships compared to their male counterparts. Since previous studies have shown that females' interpersonal ties tend to be both limited and family-oriented, I hypothesize that female entrepreneurs are more likely to establish either a solo or a family enterprise instead of a non-family team when compared to male counterparts. Using data from the Panel Study of Entrepreneurial Dynamics I and II (hereafter, PSED), nationally representative samples of nascent entrepreneurs in the United States, analysis yields results consistent with the theoretical expectation. The results indicate that female entrepreneurs are more likely to form entrepreneurial businesses either by themselves or with their family members rather than non-family members compared to male entrepreneurs. In particular, female owners are significantly less likely to make co-founder relationships with people from their professional networks, such as co-workers of previous workplaces, than males. These findings are further corroborated with the additional analysis on newly established firms using the Survey of Business Owners (SBO) provided by the U.S. Census Bureau. I conclude with the implications of this study to further understand the effect of gender on the decisions and activities of entrepreneurs.

2-2. Theoretical Background and Research Hypotheses

Social Capital and Entrepreneurship

Social capital refers to the social relationships of individuals or organizations that serve as the "glue" and "goodwill" among actors (Adler and Kwon 2002; Payne et al. 2011; Putnam 2000; Welter and Smallbone 2006). At the individual level, social capital scholars have argued that individuals can utilize social capital both to promote job searches and facilitate job promotion (Burt 1992; Coleman1988; Fukuyama 1995; Granovetter 1985; Lin 2000). At the organizational level, social capital plays a critical role in enhancing the overall performance of firms (Reagans and Zuckerman 2001; Uzzi 1999). Inside organizations, social capital can create a collaborative environment by generating interpersonal trust and social solidarity among members (Adler and Kwon 2002; Coleman 1988; Davidsson and Honig 2003; Ruef et al. 2003; Yang and Aldrich 2014). Outside organizations, the social capital of organizational members can be used to a threefold advantage: to appropriate external financial resources, to reduce transaction costs, and to recruit new members who possess non-redundant skills and knowledge (Burt 1992; Granovetter 1985; Lin, Cook and Burt, 2001; Lin et al. 2003).

Entrepreneurship research has increasingly paid attention to the effect of social capital on the activities of entrepreneurs (Baron and Tang 2008; Ireland, Hitt, and Sirmon 2003; Maurer and Ebers 2006). Empirical studies on this have suggested that the extent of the social capital of entrepreneurs increases their motivation to open a new business (Liao and Welsch, 2005). Also, they can use their social relationships with bankers, venture capitalists, and experienced discussion partners to attain greater access to financial resources and, consequently, to enhance their chance of survival in their formative stage (Boden and Nucci 2000; Gopalakrishnan, Scillitoe, and Santoro 2008).

More recently, research on entrepreneurship has expanded focus to the formation of

entrepreneurial teams (Ruef 2010; Ruef, Aldrich and Carter 2003; West 2007). In opening businesses, entrepreneurs should decide either to establish a solo enterprise or to form an entrepreneurial team with partners. A solo enterprise will not deal with coordination issues among founders, and its success will primarily depend on the ability of the lead entrepreneur. Entrepreneurial teams, on the other hand, may divide responsibilities and labor to multiple co-founders, and it is crucial for teams to maintain coordination among members. While each additional partner can provide a unique skill set to the team, a lack of coordination among partners may hinder organizational efficiency. Herein, the extent of social capital that entrepreneurs possess influences their decision about whether to form an entrepreneurial team or not. The decision to seek co-founders is inevitably restricted by the preexisting network ties that entrepreneurs maintain (Ruef et al. 2003; Yang and Aldrich 2014). In principle, the entrepreneur's decision to either open a solo business or to recruit co-founders from preexisting social ties should be based on a strategic calculation. In reality, however, this decision is heavily influenced by the preexisting social capital of entrepreneurs.

Gender, Social Capital, and Entrepreneurship

Women's entrepreneurship research has focused on the role of gender in the formation and maintenance of entrepreneurial businesses. It has paid direct attention to the difference in entrepreneurial activities between males and females (Aldrich 1989; Greve and Salaff 2003; Klyver 2011; Lin 2000; Moore 1990). Past studies have suggested that females are less likely to be self-employed and to found their own businesses compared to males (Gupta, Turban, and Pareek 2013; Gupta et al. 2009; Hughes 2003). After launching their

businesses, female entrepreneurs tend to work with lower levels of financial resources (Alsos, Isaksen, ad Ljunggren 2006; Boden and Nucci 2000; Coleman 2000). For example, female entrepreneurs are significantly less likely to receive external financing from venture capital due to the gendered stereotypes on entrepreneurship and/or the lack of social capital (Brush, de Bruin, and Welter 2014; Greene et al. 2001). This limited access to resources partially explains why female-led businesses underperform more than male-led businesses in terms of size growth, profit-making, and organizational survival (Fairlie and Robb 2009; Robb 2002).

The aspect of social capital is critical to fully understanding the gendered formation of entrepreneurship. Social network scholarship has long documented that gender difference exists in terms of the size and diversity of social capital (Moore 1990; Lin 2000; Aldrich 1989; Greve and Salaff 2003; Klyver 2011). Early network studies proposed that males tend to have larger and more heterogeneous networks than females (Campbell and Rosenfeld 1985). This has been explained by males' higher participation than females' in public affairs, given females forced work as housekeepers; since females are less likely than males to work in larger and formal organizations than females, they are used to being marginalized in the dominant social networks ruled by males (Marsden 1987; McPherson and Smith-Lovin 1982). At the same time, female networks tend to be centered around strong ties, such as with family members and friends (Moore 1990; Lin 2000).

Due to the drastic increase of female participation in economic activities, female networks have become increasingly diversified. Network studies have suggested that women with prior work experience are more likely to maintain larger and diverse social capital than those without it. (Renzulli, Aldrich, and Moody, 2000). But still, research on

entrepreneurship indicates that female entrepreneurs tend to have smaller, less diverse, and family-oriented networks compared to males (Greve and Salaff 2003; Klyver 2011; Renzulli et al.2000). Female entrepreneurs often have no professional background or limited experience as only low-level employees in their past work organizations (Fischer, Reuber, and Dyke 1993), and their limited interaction with professional others leads to a lack of social capital (Aldrich and Cliff 2003; Cromie and Birley 1992). Even females who occupied upper-level managerial positions are less integrated into the core "old boy" networks that hold power and resources within and outside the organization (Burke and McKeen, 1994; Davidson and Cooper 1992; Ibarra, 1992; Linehan 2000; Scase and Goffee 1989).

Moreover, scholars indicate that females tend to be have family-oriented networks compared to males (Aldrich 1989; Greve and Salaff 2003). Due to gender stereotypes, women are expected to take primary responsibility for the domestic sphere, even when they are employed (Bradley 2007; Yang and Aldrich 2014). Women are increasingly surrounded by a family-oriented environment after marriage and in child rearing (Aldrich and Cliff 2003; Wellman 1985). The gendered role in housekeeping and childcare often limits women's competency to form heterogeneous and formal social networks (Munch, McPherson, and Smith-Lovin 1997; Wellman, 1985). Regarding entrepreneurship, female entrepreneurs nominate their spouses as the first source for business advice, followed? by their friends and professional experts (Orhan 2001). The order is different for male entrepreneurs who nominate professional experts as their first source and their spouses as second. Past research has also indicated that females are more likely to seek financial resources from informal sources such as family loans, rather than from external equity

(Carter et al. 2007; Chaganti, DeCarolis and Deeds 1996; Coleman and Robb 2009; Powell and Eddleston 2013).

Research Hypotheses

In the formation of nascent businesses, entrepreneurs may share ownership with two groups of individuals: family members and non-family members (Aldrich et al.1996; Granovetter 1985; Ruef et al., 2003; Ruef 2010; Yang and Aldrich 2014). Family members such as spouses, parents, and siblings share common identities and maintain a high level of interpersonal trust (Bourdieu 1973; Dyer 2006). Moreover, family members have frequent opportunities to discuss ideas for founding a new business, and they also serve as a potential pool of reliable partners (Randerson et al. 2015). On the other hand, non-family members such as friends and co-workers can also develop high levels of trust with entrepreneurs; this strong trust generated with friends or co-workers often translates into a collaboration with them in founding an entrepreneurial team. In particular, non-family members can provide a skill set that the lead entrepreneur does not possess, thus facilitating the division of labor between co-founders.

The social capital that entrepreneurs possess plays an important role during the formation process of nascent businesses. Entrepreneurs who have frequent interactions with their family members may tend to rely on family ties when opening a business. Entrepreneurs who have diverse connections with friends and co-workers, on the other hand, may work in partnership with one of them because of specialized skills and knowledge. Entrepreneurs whose social capital is limited, on the other hand, will tend to establish a business alone. As to the entrepreneur's gender, females are less likely to have prior

employment experience at the managerial level compared to male counterparts, and those who have rich professional experience are still more likely to be marginalized away from core, male-dominant networks. Since female entrepreneurs tend to possess limited social capital, they struggle to find co-founders who can collaborate with them in establishing a business. Accordingly, I hypothesize:

H2-1: Female entrepreneurs will be more likely to found a solo enterprise rather than to share ownership with others compared to their male counterparts.

Furthermore, past studies have suggested that female entrepreneurs are relatively more embedded in their family relationships compared to male entrepreneurs (Aldrich 1989; Greve and Salaff 2003; Orhan 2001). Females are more likely to maintain family-oriented networks and tend to rely on family members in establishing an enterprise than males. Furthermore, the stronger motivation of females to attain a better balance between work and family compared to males will lead to a greater likelihood that females start a family enterprise with family members. Accordingly, I expect:

H2-2: Female entrepreneurs will be more likely to have co-founder relationship(s) with family members rather than non-family members compared to their male counterparts.

In addition, females tend to have less professional and managerial experience than males, and therefore, female entrepreneurs may have limited professional networks with co-workers from their previous workplace. Thus, in terms of business formation, I hypothesize:

H2-3: Female entrepreneurs will be less likely to have co-founder relationship(s) with their professional ties compared to their male counterparts.

2-3. Data, Variables, and Method

Data and Sample

In this study, the merged dataset of the Panel Study of Entrepreneurial Dynamics I and II (PSED I & II) is used as the primary dataset to test the hypotheses on the relationship between entrepreneurs' gender and their business ownership structure. Although each database surveyed different respondents, both targeted the same population and share similar questionnaires that facilitate combining them. Both data surveyed a nationally representative sample of nascent entrepreneurs, who preparing to open a new business in the U.S. (Reynolds et al. 2004). Nascent entrepreneurs refer to individuals actively engaged in the creation of a new business, but who have not yet achieved a viable firm. Specifically, nascent entrepreneurs refer to respondents who have engaged in entrepreneurial activity in the past 12 months, own equity in the new business, and have not achieved revenues sufficient to cover expenses. With their rich detail on the backgrounds and characteristics of nascent entrepreneurs, these datasets are useful in examining the formation process of entrepreneurial firms. Respondents are screened by asking questionnaires and then qualified entrepreneurs are directed to a comprehensive interview; they are defined as respondents who have engaged in entrepreneurial activity in the past 12 months, own equity in the new business, and have not yet achieved revenues sufficient to cover expenses. Eligible

respondents are interviewed again every 6-12 months over 2 to 5 years to follow their answers to questions on the activities undertaken during the start-up process, and the characteristics of entrepreneurs or entrepreneurial teams that pursue the creation of new firms. PSED I began with screening in 1998-2000, followed by three interviews (four waves in total) while PSED II had six yearly interviews in total from 2005 to 2010. Among 2,044 respondents (PSED I=830, PSED II=1,214), the number of solo enterprises is 1,043 (51%, PSED I=415, PSED II=628) while the number of team-based businesses is 972 (PSED I=415, PSED II=557).

PSED I and II is particularly advantageous over other datasets for three reasons. First, it asks questions of entrepreneurs who are actively engaged in the creation of businesses at the time of the survey. Thus, I can avoid measurement errors that are often involved in retrospective surveys. Second, the survey includes nascent entrepreneurs who do not attain successful outcomes. Thus, I can overcome the success bias presented in studies that limit their focus to entrepreneurs who went through the nascent period. Finally, the data includes detailed information on the ownership structure of entrepreneurial firms. Hence, the data provides a unique opportunity to investigate the relationship between entrepreneurs' socio-demographic backgrounds such as sex, and the recruitment of co-founders such as family members, co-workers, and friends.

In addition to PSED I and II, I conduct a supplementary analysis by using the U.S. Census's data from the Survey of Business Owners and Self-Employed Persons (SBO). The SBO covers all non-farm businesses that file tax forms with the Internal Revenue Service. Therefore, this data provides very comprehensive information on the socio-demographic characteristics and entrepreneurial activities of business owners in the United States. In this

study, the SBO's Public Use Micro-Data Sample (PUMS) surveyed in 2007 is used.

As mentioned, SBO surveys a different firm population from PSED data; while PSED surveys pre-profit businesses, SBO surveys newly established firms. However, I consider SBO comparable to PSED as a supplementary dataset for a few reasons. First, both databases provide the most comprehensive information on the owners as well as the businesses from all sectors in the U.S. To be specific, both surveys collect data on owner' information such as gender, race, education as well as whether firms are family-owned. Second, by comparing SBO to PSED, I can infer whether the findings from nascent ventures persist in the post-profit period. Lastly, SBO is a Large-N dataset that allows me to obtain the desired statistical power.

Within this data, I limit the analysis to young firms with short business histories (5 years or less) according to the framework of the OECD Entrepreneurship Indicator Project (Ahmad and Hoffman 2008; Delgado, Porter, and Stern 2010). That being said the sample still includes over 300,000 firms. Since the data does not include detailed information on the backgrounds and the social relationships of business owners, I fail to include a few important control variables in the models. Despite its shortcomings, however, I believe that the supplementary analysis on the SBO PUMS data can serve as a robustness check for the main analysis using PSED II. While information on the social relationships among business owners is limited, I can still examine the association between owners' gender and the basic ownership structure of their businesses. I can also test if the findings on nascent businesses using PSED can be replicated in the case of new businesses that have already been initiated.

Dependent Variables

PSED data is appropriate to test the hypotheses since it asks respondents about the ownership structure of their nascent businesses. In particular, it collects information on whether their businesses are owned by themselves or by multiple individuals. In the case of entrepreneurial teams where multiple founders are involved, it further asks respondents about their relationships with other co-founders. These relationships are in the following categories: a spousal relationship, significant other residing in the same household, significant other residing in a different household, relative residing in the same household, relative residing in a different household, non-work-related friends, work-related ties and strangers.

Regarding the ownership structure of nascent businesses, I classify the structure into three main types: solo enterprises, family enterprises (spouse, significant other residing the same household, and relatives), and non-family enterprises (non-work related friends, work-related friends, significant other residing the different household, and stranger). Solo enterprises are defined as businesses that are owned only by the respondent. Family enterprises refer to the businesses that are co-owned by the respondent and at least one of his/her family members such as a spouse, a significant other residing the same household, or a relative. Finally, non-family enterprises mean the businesses that are co-owned by the respondent and his/her non-family members. Among 2,044 respondents who are identified as nascent entrepreneurs in first wave, 1,066 (52%) entrepreneurs are opening a solo enterprise, 677 (33.12%) entrepreneurs have at least one family member as a co-founder, and 301 (14.7%) respondents are only collaborating with non-family members. This ownership structure can be changed over years by dropping existing members or adding new

members.

In addition to the main dependent variable, the two types of ownership structures, I examine the social relationships between the respondents and their co-owners within entrepreneurial teams, especially non-family ties. Here, I distinguish non-family ties into non-work-related friendship ties (e.g. co-owners who were friends) and work-related professional ties (e.g. co-owners who were co-workers). Among 978 entrepreneurial teams in first wave, there are 210 respondents who utilize friendship ties, and 189 respondents who rely on co-worker ties.[1]

In the supplementary analysis using the SBO PUMS data, I replicate the main analysis by examining the different ownership structures of entrepreneurial businesses. The SBO data provides information on whether the respondents own their businesses alone and, if not, whether or not their businesses are co-owned by family members[2]. From this information, I distinguish among solo, family, and non-family enterprises. As mentioned, entrepreneurial firms are operationalized as those up to r5 years, and are "founded" by owners in this research; the businesses which are older than 5 years and which are purchased, inherited, received as a transfer or gift, and acquired are dropped. Among 335,501 young businesses in the data, 197,848 respondents (59.0%) are running solo enterprises, 86,259 respondents (25.7%) own their businesses with at least one family member, and 51,394 respondents (15.3%) run their businesses only with non-family

[1] A single entrepreneur can recruit multiple co-owners from different types of ties. For instance, one entrepreneurial team can consist of both family ties and non-family ties at the same time.

[2] SBO asks respondents whether the majority of the business is owned by two or more members of the same family which includes spouses, parents/guardians, children, siblings, or close relatives.

members.

Independent Variables

This study focuses on the effect of entrepreneurs' gender on the ownership structure of new businesses. I examine whether female entrepreneurs tend to establish solo or family businesses instead of non-family businesses, in comparison to male entrepreneurs. Thus, the key independent variable of the analysis is the respondent's gender. In this binary variable, females are coded as 1 while males are coded as 0.

In addition, I include a series of independent variables as controls in all of the models. First of all, entrepreneurs will have fewer opportunities to interact with non-family members when they get married or have a child (Wellman1985). Thus, entrepreneurs currently married or who have responsibilities to raise a child are more likely than non-family businesses to open family-owned businesses. To address this possibility, I include binary variables on the respondents' marital status as well as their status of having a child as control variables in the models.

Past studies have also suggested that entrepreneurs' preexisting human capital matters in launching and running new businesses (Bosma et al. 2004; Fairlie and Robb 2009). Also, this human capital can offer the opportunities for easy access to non-family ties. In this study, I test the possibility that entrepreneurs with high education and established professional careers will tend to open non-family enterprises with co-workers from previous workplaces than entrepreneurs with limited professional careers. Accordingly, I control for (1) educational background, (2) the respondents' previous work experience in the industry where they opened new businesses, (3) their previous experience as managers,

and (4) their previous start-up experience. Moreover, I examine the interaction effects of gender and these human-capital-related variables in order to identify whether female entrepreneurs with more human capital are collaborating with work-related ties over family members. Educational background is an ordinal variable coded as: having less than a college education, having a college education, and having graduate education. Work and managerial experience are continuous variables that reflect years of experience. Start-up experience is measured as the number of businesses that a respondent created before.

Additionally, three basic socio-demographic variables are also included in all models: the respondents' race, and age. These demographic characteristics are known to be closely related to the volume and diversity of social capital (McPherson and Smith-Lovin 1982; McPherson, Smith-Lovin, and Cook 2001; Lin 2000). As to entrepreneurs' race, I add the following binary variables: Whites, Blacks, Hispanics, Asians and others[3]. The variable for "others" is set as the reference category in the models. For the respondents' age, I add both their age and the squared age with the rationale that the effect of age will show a U-shape.

Finally, the industrial environment of new businesses may influence the formation of an ownership structure. In particular, solo and family enterprises may be found less frequently in capital-intensive industries such as manufacturing and construction, or knowledge-intensive industries such as finance, health, education, and business sectors, in contrast to service industries such as retail and restaurant. Using information from PSED, I categorize industrial types into eight major industries: services (retail stores, restaurants,

[3] Other races are not specified in PSED.

bars, or nightclubs), professional services (health, education, social, and business), finance (including insurance and real estate), manufacturing, construction, agriculture/mining, transportation/utilities/communication, and other industries. The descriptive statistics of the dependent and independent variables are presented in Table 2-1.

Table 2-1. Descriptive Statistics of Dependent and Independent Variables (PSED I & II, All Waves)

Variables	Description	Merged (PSED I+II)			PSED I			PSED II			Min.	Max.
		Obs.[4]	Mean	S.D.	Obs.	Mean	S.D.	Obs.	Mean	S.D.	(PSEDI/II)	(PSEDI/II)
Dependent Variables												
Business type	Solo = 1 / Family = 2 / Non-family = 3	6,919	1.611	.722	2,593	1.69	.754	4,326	1.56	.697	1	3
	Solo vs. Team (Frequency)	3,673 vs. 3,245			1,253 vs. 1,340			2,420 vs. 1,905			-	-
	Family Team vs. Non-Family Team (Frequency)	2,266 vs. 979			879 vs. 461			1,387 vs. 518			-	-
Friends	Team with friends = 1 / no = 0	6,919	.098	…	2,593	.122	…	4,326	.084	…	0	1
Co-workers	Team with a co-workers = 1 / no = 0	6,919	.091	…	2,593	.110	…	4,326	.080	…	0	1
Independent Variables												
Gender	Female = 1 / Male = 0	6,919	.436	…	2,593	.540	…	4,326	.373	…	0	1
Married	Currently married = 1 / unmarried = 0	6,897	.587	…	2,578	.601	…	4,319	.579	…	0	1
Child	Having a child 5 years old or less = 1 / no = 0	6,285	.225	…	2,585	.255	…	3,700	.205	…	0	1
Race	Race: White	6,919	.718	…	2,593	.644	…	4,326	.762	…	0	1
	Race: Black	6,919	.162	…	2,593	.222	…	4,326	.126	…	0	1
	Race: Hispanic	6,919	.065	…	2,593	.084	…	4,326	.053	…	0	1
	Race: Asian	6,919	.009	…	2,593	.006	…	4,326	.010	…	0	1
	Race: Other Races	6,919	.054	…	2,593	.029	…	4,326	.069	…	0	1
Age	Age	6,856	44.26	12.63	2,549	41.03	11.17	4,307	46.17	13.05	18	77/86

[4] PSED is a panel dataset so that the number of observation is larger than the number of respondents/enterprises.

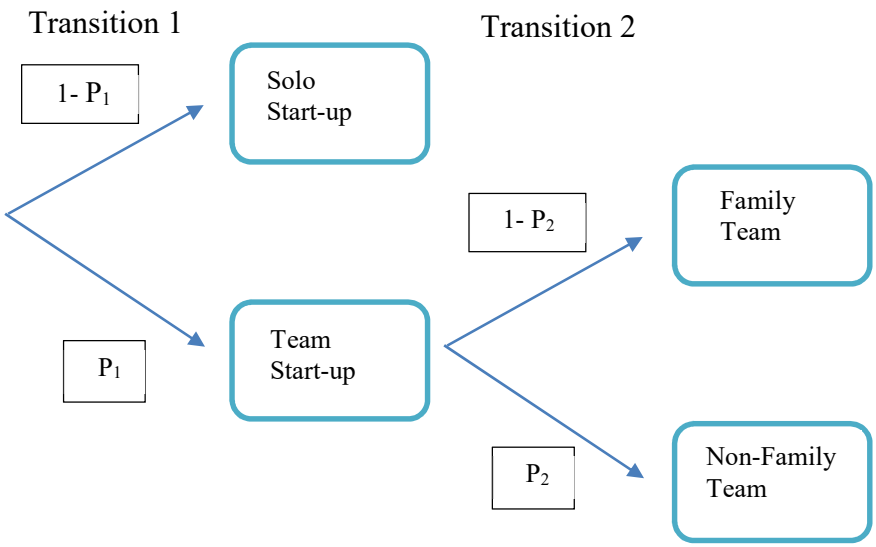
Education	Less than college = 0 /college = 1 /graduate = 2	6,875	-.229	.699	2,577	-.411	.757	4,298	-.119	.637	-1	1
Industrial experience	Years of previous, relevant work experience	5,577	10.10	10.94	1,269	10.14	10.43	4,308	10.08	11.09	.5/0	60/54
Managerial experience	Years of previous managerial experience	6,840	10.56	9.83	2,517	8.86	8.40	4,323	11.55	10.45	0	53/60
Start-up experience	# of businesses that a respondent created before	5,588	1.092	2.053	1,264	1.16	1.95	4,324	1.07	2.08	0	20/25
Industry categories	Retail store, restaurant, bar, or nightclub	6,919	.187	…	2,593	.251	…	4,326	.148	…	0	1
	Health, education, social, business	6,919	.487	…	2,593	.476	…	4,326	.494	…	0	1
	Manufacturing	6,919	.062	…	2,593	.056	…	4,326	.065	…	0	1
	Construction	6,919	.056	…	2,593	.047	…	4,326	.061	…	0	1
	Agriculture or Mining	6,919	.049	…	2,593	.036	…	4,326	.056	…	0	1
	Transportation, utilities, communication	6,919	.082	…	2,593	.066	…	4,326	.092	…	0	1
	Finance, insurance, real estate	6,919	.070	…	2,593	.049	…	4,326	.083	…	0	1
	Other industries	6,919	.001	…	2,593	.003	…	4,326	.001	…	0	1
Total N	Total number of respondents/businesses		2,044			830			1,214		…	…

In the supplementary analysis using the SBO PUMS data, I include a similar set of control variables in the models. The main independent variable is the primary owner's gender. Female is coded as 1 while male is coded as 0. The primary owner here is defined as the owner with the largest proportion of business ownership. In the case where all owners have the same proportion, the one who spends more time in the business is identified as the primary owner. In addition, I control for the primary owner's socio-demographic characteristics such as race (Whites, Blacks, Hispanics, and others), age, and educational backgrounds (less than college education, college education, and graduate education). I also control for his/her prior entrepreneurial experience as a proxy for a professional career and experience. Due to the lack of information in the SBO data, however, I am unable to include the respondents' marital status and their status of having a child.

Analytic Strategy

I estimate a series of sequential logistic regression models to explain the different ownership structures of businesses. The dependent variable (1. solo / 2. family start-up / 3. non-family start-up) is categorical, and consists of two transitions; first, an entrepreneur decides whether s/he is engaged in a venture team or not, then if s/he is engaged in an entrepreneurial team, s/he decides whether to collaborate with family members or not. The sequential logit can estimate the probabilities of passing these transitions (Buis 2011). A schematic of the model is shown in Figure 2-1. By employing the sequential logit models, I estimate the likelihood that an entrepreneur is involved in a start-up team as an owner (p_1) or will open a solo enterprise (1- p_1), and then model the probability that s/he is in a non-family team (p_2) or in a family team (1- p_2).

Figure 2-1. Ownership Structure Transitions of Nascent Entrepreneurs



When person *i* passes transition *k,* its probability is given by:

$$p1i = \frac{\exp(a1 + \lambda 1 \times GENDERi + b1 \times xi)}{1 + \exp(\ a1 + \ \lambda 1 \times GENDERi + b1 \times xi}$$

$$p2i = \frac{\exp(a2 + \lambda 2 \times GENDERi + b2 \times xi)}{1 + \exp(\ a2 + \ \lambda 2 \times GENDERi + b2 \times xi)} \qquad \text{if pass 1=1,}$$

where α_k is a constant for transition k, λ_k is the gender variable associated with transition k, and b_k is the effect of the other independent variables χ_i. I include the sample weight provided by PSED I and II to correct for differential sampling probabilities. In interpreting the results, I present the odds ratios in the main text.

In an additional analysis, I examine the differential ownership share within non-family entrepreneurial teams. In forming non-family teams, entrepreneurs can share

ownership with a non-work related friend, or/and a co-worker from a previous workplace; since the dependent variables are binary, I employ a series of binomial logistic regression models. I include the same set of independent variables that I use in the sequential logistic regression analysis. While the regression coefficients are the log odds of recruiting the particular type of members (e.g., a non-work-related friend, a co-worker), I also present the odds ratios in the main text to facilitate interpretation.

Finally, I investigate the robustness of the findings with an analysis of a dataset with limited information on entrepreneurs but a larger number of observations: the SBO PUMS 2007. I run the same sequential logistic regression model to test the effect of entrepreneurs' gender on the ownership types of new businesses. I measure the likelihood that an entrepreneur runs either a solo enterprise or a family enterprise, relative to running a non-family enterprise.

2-4. Results

The dependent variable, ownership type, is coded as 1 for solo owners; 2 for those sharing ownership with family members; and 3 for those having co-founder relationships with non-family members. The proportions for each category are 52%, 33%, and 15% respectively (based on the first wave). Table 2-2 presents the findings from the estimation of sequential logit models on the relationship between an entrepreneur's gender and the business ownership type.

Table 2-2. Sequential Logistic Regression on the Relationship between an Entrepreneur's Gender and Business Type (PSED I & II)

	Model 1.		Model 2.		Model 3.		Model 4.		Model 5.		Model 6.	
	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family
Gender(female)	-.39*** (.10)	-.93*** (.17)	-.27* (.13)	-.75** (.24)	-.31* (.14)	-.75** (.24)\	-.34* (.16)	-.54* (.25)	-.42* (.20)	-.70* (.33)	-.29* (.14)	-.74** (.27)
Currently Married	1.26*** (.12)	-1.17*** (.19)	1.19*** (.15)	-1.20*** (.26)	1.20*** (.15)	-1.24*** (.26)	1.22*** (.15)	-1.29*** (.27)	1.23*** (.15)	-1.25*** (.27)	1.21*** (.15)	-1.25*** (.27)
Having a child (5yr or less)	-.26* (.13)	.09 (.21)	-.20 (.17)	.34 (.30)	-.23 (.17)	.38 (.30)	-.21 (.17)	.37 (.31)	-.21 (.17)	.38 (.30)	-.22 (.17)	.38 (.30)
Race[a]: White	.30 (.22)	-.29 (.35)	.34 (.27)	-.30 (.38)	.32 (.26)	-.27 (.38)	.31 (.26)	-.27 (.38)	.32 (.26)	-.28 (.39)	.32 (.26)	-.28 (.39)
Race: Black	.24 (.24)	-.41 (.38)	.13 (.31)	-.58 (.44)	.11 (.31)	-.59 (.44)	.10 (.30)	-.64 (.44)	.10 (.30)	-.60 (.45)	.10 (.30)	-.60 (.45)
Race: Hispanic	.55* (.28)	-.42 (.45)	.57 (.35)	-.17 (.58)	.62† (.35)	-.22 (.60)	.58† (.35)	-.18 (.61)	.59† (.35)	-.22 (.60)	.59† (.35)	-.22 (.60)
Race: Asian	-.31 (.70)	.13 (1.1)	-.41 (.87)	.12 (1.52)	-.38 (.82)	.30 (1.37)	-.34 (.80)	.30 (1.33)	-.34 (.80)	.30 (1.36)	-.34 (.80)	.30 (1.37)
Age	-.10*** (.02)	.01 (.04)	-.09** (.03)	.05 (.05)	-.09** (.03)	.05 (.05)	-.09** (.03)	.05 (.05)	-.09** (.03)	.05 (.05)	-.09** (.03)	.05 (.05)
Age squared	.00*** (.00)	.00 (.00)	.00* (.00)	.00 (.00)	.00* (.00)	.00 (.00)	.00* (.00)	.00 (.00)	.00* (.00)	.00 (.00)	.00* (.00)	.00 (.00)
Education level [a]			.20† (.10)	.02 (.18)	.25* (.13)	.05 (.20)	.16† (.08)	.05 (.18)	.16† (.08)	.06 (.18)	.16† (.08)	.07 (.18)
Work experience (years)			-.01 (.01)	.00 (.01)	-.01 (.01)	.00 (.01)	-.01 (.01)	.01 (.01)	-.01 (.01)	.00 (.01)	-.01 (.01)	.00 (.01)
Managerial experience (years)			.01	.01	.01	.01	.01	.01	.00	.01	.01	.01

			(.01)	(.02)	(.01)	(.02)	(.01)	(.02)	(.01)	(.02)	(.01)	(.02)
Startup experience (number of start-ups)			.00 (.03)	.10† (.05)	.00 (.03)	.08† (.04)	-.01 (.03)	.10† (.05)	-.01 (.03)	.08† (.04)	-.01 (.05)	.09 (.08)
Interaction Terms												
Education level * Gender(Female)					-.27 (.21)	.04 (.36)						
Industry experience * Gender(Female)							.01 (.01)	-.03 (.02)				
Managerial experience * Gender(Female)									.01 (.01)	-.01 (.02)		
Startup experience * Gender(Female)											.02 (.06)	-.02 (.09)
Industry dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
PSED dummy	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Wave dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Constant	1.34† (.79)	1.18 (1.45)	-4.76*** (.82)	1.60 (1.51)	-6.41*** (.88)	.24 (2.44)	-6.33*** (.88)	.13 (2.44)	-6.32*** (.88)	.20 (2.43)	-6.36*** (.88)	.22 (2.44)
Log-likelihood	-5638.43		-3465.84		-3462.62		-3462.95		-3463.98		-3465.59	
Total Observation (N)	6226		4835		4835		4835		4835		4835	
Cluster	1841		1392		1392		1392		1392		1392	

Note: ***p < .001, **p < .01, *p < .05, †p<0.1 (two-tailed); standard errors in parentheses.
a The base category is “other race”

The results from the sequential logistic regression analysis using the merged dataset of PSED I and II suggest that female entrepreneurs are significantly more likely to found a solo start-up rather than sharing ownership with others compared to men (Transition 1). I first establish a baseline model (Model 1) to test the hypotheses. In Table 2-2, Model 1 shows that the odds of women being solo owner rather than collaborating with other people are 48 percent (ß=-.39, $p < 0.01$) higher than for their male counterparts. This holds even after controlling for the entrepreneur's marital status and the presence of a child 5 years old or less. Then, in Model 2, I examine the gendered pattern of start-up ownership type, after controlling for human capital; I add four human capital variables: education level, work experience in the same industry where a new business is created, managerial experience, and start-up experience. Some of the gender difference in ownership type is explained by the gender difference in human capital; the odds of females opening solo start-ups rather than being engaged in a venture team is 31 percent (ß=-.27, $p< 0.05$) higher than the odds for males. Among human capital variables, only one is statistically significant; the education level increases the odds of being in a start-up team by 22 percent.

Building on these findings, I examine whether human capital moderates the effect of gender (Model 3 to 6 in Table 2-2). Across these models, I find a consistent gender effect on ownership type (solo vs. team). However, I cannot see any significant effect for the interaction terms between human capital variables and being female. As demonstrated in Model 3, education level increases the odds of men creating a venture team rather than being solo owners by 28 percent but it has no significant effect on women entrepreneurs.

Among the control variables, the results show that married entrepreneurs are more likely to create entrepreneurial teams than to found a start-up alone; being married is

associated with a 3.3 to 3.6 times increase in founding a team, relative to being a solo owner. Meanwhile, each additional year of age increases the odds of being a solo owner by 9 percent over creating a venture team.

Turning to transition 2, given that an entrepreneur belongs to a start-up team, s/he can participate in a family start-up or in a non-family start-up. As shown in Table 2-2, gender is an important determinant of ownership share in venture teams. In the baseline model (Model 1), the odds for women entrepreneurs participating in a family team rather than a non-family team are 153 percent (ß=-.93, $p< 0.001$) higher than for men. After controlling for human capital, the gender effect still remains strong and significant; female entrepreneurs are associated with a 2.14 times (ß=-.75, $p< 0.01$) increase in opening a family business, compared to opening a non-family enterprise (see Model 2). Among human capital variables, only start-up experience increases the likelihood of creating non-family venture teams; each additional number of start-up created before increases the odds of being in a non-family team by 8 percent.

In models estimating the influence of interaction between gender and human capital (Model 3 to Model 6) as well, the results show that the power of gender logic remains strong and significant; female are 1.7 to 2.1 times more likely to be engaged in a family team than to share ownership with non-family members compared to their male counterparts. However, like the results of transition 1, I cannot detect any significant effect for the interaction terms between human capital variables and being female. Start-up experience also holds its effect in Models 3 to 5, but it loses its significance in Model 6 when examining the interaction term between start-up experience and gender. To summarize, the results support the expectation that female entrepreneurs will be more likely to share ownership

with their family members than non-family ties but human capital does not moderate the gender logic in ownership share in founding teams.

Next, using binomial logistic regression models, I examine the effect of an entrepreneur's gender on the co-founder relationship with non-family members. The first dependent variable is whether an entrepreneur has a co-founder relationship with non-work related friends; the second one is whether s/he is collaborating with work-related acquaintances. These results are presented in Tables 2-3 and 2-4 respectively.

Table 2-3. Binomial Logistic Regression on the Relationship between an Entrepreneur's Gender and the Co-Founder Relationship with Non-Work-Related Friends (PSED I & II)

	Model 1	Model 2	Mode 3	Model 4	Model 5	Model 6
Gender (female)	-.51**	-.31	-.23	-.26	-.56	-.34
	(.18)	(.25)	(.26)	(.33)	(.36)	(.28)
Currently Married	-.08	.02	.04	.01	.05	.03
	(.17)	(.23)	(.23)	(.23)	(.23)	(.23)
Have a child (5yrs or less)	-.25	-.42	-.41	-.42	-.42	-.42
	(.20)	(.30)	(.30)	(.30)	(.30)	(.30)
Age	-.11***	-.06	-.07	-.06	-.06	-.06
	(.03)	(.05)	(.05)	(.05)	(.05)	(.05)
Age Squared	.00**	.00	.00	.00	.00	.00
	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
Race[a]: White	.14	.67†	.66†	.67†	.68†	.68†
	(.32)	(.38)	(.38)	(.38)	(.38)	(.38)
Race: Black	.13	.58	.55	.57	.59	.59
	(.34)	(.43)	(.43)	(.43)	(.43)	(.43)
Race: Asian	-.11	-.35	-.27	-.35	-.35	-.36
	(.64)	(.85)	(.83)	(.85)	(.87)	(.85)
Race: Hispanic	.53	1.06*	1.05*	1.10*	1.09*	1.10*
	(.40)	(.54)	(.54)	(.53)	(.53)	(.54)
Education Level		-.01	-.16	-.01	.00	-.01
		(.16)	(.20)	(.16)	(.16)	(.16)

Work Experience		-.00 (.01)	.00 (.01)	.00 (.02)	.00 (.01)	.00 (.01)
Managerial Experience		.03† (.02)	.03* (.02)	.03† (.02)	.02 (.02)	.03† (.02)
Start-up Experience		.03 (.04)	.02 (.04)	.03 (.04)	.02 (.04)	.01 (.08)
Interaction						
Education level * Gender(Female)			.60† (.32)			
Industry experience * Gender(Female)				-.01 (.03)		
Managerial experience * Gender(Female)					.02 (.02)	
Startup experience * Gender(Female)						.03 (.09)
Industrial categories	Included	Included	Included	Included	Included	Included
PSED dummy	Included	Included	Included	Included	Included	Included
Wave dummies	Included	Included	Included	Included	Included	Included
Constant	1.02 (1.92)	-16.36*** (1.21)	-16.03*** (1.24)	-16.24*** (1.21)	-16.17*** (1.18)	-16.36*** (1.21)
Log-Likelihood	-1916.96	-1092.84	-1088.85	-1092.75	-1091.26	-1092.73
Total Observation (*N*)	4,836	4,836	4,836	4,836	4,836	4,836
Cluster	1,392	1,392	1,392	1,392	1,392	1,392

Note: $^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$, $^{\dagger}p<0.1$ (two-tailed); standard errors in parentheses.

[a] The base category is "other race"

As shown in Model 1, the baseline, being female decreases the odds of having a co-founder relationship with a friend by 40 percent (ß=.51, p <0.01). However, this gender effect disappears after controlling for human capital variables (see Models 2 to 6). Interestingly, Model 3 indicates that a higher education increases the probability for female entrepreneurs to make a partnership with a friend by 44 percent (exp [-.23+.60]). Other

interaction variables of human capital and gender (where female=1) have no significant effect on the co-founder relationship with a non-work-related friend.

Table 2-4. Binomial Logistic Regression on the Relationship between an Entrepreneur's Gender and the Co-Founder Relationship with Work-Related-Acquaintances (PSED I & II)

	Model 1	Model 2	Mode 3	Model 4	Model 5	Model 6
Gender (female)	-.97***	-.67**	-.72**	-.43*	-.49*	-.48*
	(.18)	(.24)	(.24)	(.21)	(.23)	(.23)
Currently Married	.11	.16	.14	.12	.13	.12
	(.17)	(.24)	(.24)	(.25)	(.25)	(.24)
Have a child (5yrs or less)	-.03	.44	.42	.44	.44	.44
	(.22)	(.29)	(.29)	(.29)	(.29)	(.29)
Age	.00	.03	.03	.03	.03	.02
	(.04)	(.06)	(.05)	(.05)	(.05)	(.06)
Age Squared	.00	-.00	.00	.00	.00	.00
	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
Race[a]: White	.14	-.30	-.28	-.29	-.31	-.32
	(.35)	(.42)	(.41)	(.42)	(.42)	(.42)
Race: Black	-.13	-.74	-.70	-.75	-.75	-.77
	(.37)	(.49)	(.48)	(.48)	(.49)	(.49)
Race: Asian	-.03	.43	.40	.44	.43	.43
	(.83)	(.87)	(.87)	(.86)	(.86)	(.87)
Race: Hispanic	.06	-.01	.05	.02	-.01	.00
	(.46)	(.60)	(.60)	(.60)	(.60)	(.60)
Education Level		.34*	.47*	.34*	.34*	.35*
		(.17)	(.19)	(.17)	(.17)	(.17)
Work Experience		-.01	-.01	.00	-.01	-.01
		(.01)	(.01)	(.01)	(.01)	(.01)
Managerial Experience		.02	.02	.02	.02	.02
		(.01)	(.01)	(.01)	(.02)	(.01)
Start-up Experience		.04	.05	.06	.04	.10†
		(.04)	(.04)	(.04)	(.04)	(.06)
Interaction						
Education level *			-.61			

Gender(Female)			(.39)			
Industry experience * Gender(Female)				-.03 (.02)		
Managerial experience * Gender(Female)					-.02 (.02)	
Startup experience * Gender(Female)						-.15 (.10)
Industrial categories	Included	Included	Included	Included	Included	Included
PSED dummy	Included	Included	Included	Included	Included	Included
Wave dummies	Included	Included	Included	Included	Included	Included
Constant	-.99 (1.16)	-17.45*** (1.30)	-17.54*** (1.33)	-17.44*** (1.29)	-17.48*** (1.30)	-17.29*** (1.32)
Log-Likelihood	-1865.52	-1083.43	-1079.67	-1081.11	-1082.74	-1080.26
Total Observation (*N*)	4,836	4,836	4,836	4,836	4,836	4,836
Cluster	1,392	1,392	1,392	1,392	1,392	1,392

Note: ***p < .001, **p < .01, *p < .05, †p<0.1 (two-tailed); standard errors in parentheses.

[a] The base category is "other race"

Unlike the results on non-work related friends, being female has a significant negative effect on having a co-founder relationship with a work-related acquaintance, as shown in Table 2-4. The baseline model shows that being a female entrepreneur is associated with a 62 percent (ß =-.97, p<0.001) decrease in sharing ownership with a previous co-worker. Even after controlling for human capital variables, the power of gender logic remains strong (see Model 2 to Model 6). These results support the hypothesis that female entrepreneurs will be less likely to recruit co-workers as their co-founders, in comparison to male counterparts. Among four merit-based variables, only education level has a positive effect on recruiting co-founders from work-related ties. As Models 3 to 6 show, human capital does not moderate the gender logit in making a co-founder relationship

with co-workers.

Finally, I examine the robustness of these findings by conducting a supplementary analysis using the SBO PUMS Census data as presented in Table 2-5. As expected, the results are consistent with the main findings from the PSED II dataset.

Table 2-5. Sequential Logistic Regression on the Relationship between an Entrepreneur's Gender and Business Type (SBO PUMS)

	Model1		Model2		Model3	
	team vs. solo	*non-family vs. family*	*team vs. solo*	*non-family vs. family*	*team vs. solo*	*non-family vs. family*
Gender(female)	-.659*** (.070)	-.399*** (.053)	-.660*** (.070)	-.394*** (.051)	-.613*** (.071)	-.268*** (.055)
Race[a]: White	.409*** (.035)	.119** (.044)	.409*** (.035)	.120** (.044)	.408*** (.035)	.119** (.044)
Race: Black	-.054 (.057)	.169*** (.044)	-.053 (.057)	.172*** (.045)	-.053 (.057)	.173*** (.044)
Race: Hispanic	-.166*** (.026)	-.026 (.046)	-.165*** (.026)	-.024 (.046)	-.165*** (.026)	-.023 (.046)
Race: Asian	.162** (.059)	.054 (.076)	.162** (.059)	.056 (.076)	.163** (.059)	.058 (.076)
Age	.567*** (.046)	.162* (.067)	.568*** (.047)	.163* (.067)	.568*** (.047)	.166* (.068)
Age squared	-.065*** (.008)	-.035*** (.008)	-.065*** (.008)	-.036*** (.008)	-.065*** (.008)	-.036*** (.008)
Education level	.246*** (.069)	.220*** (.039)	.259*** (.081)	.267*** (.036)	.246*** (.069)	.219*** (.039)
Self-employment experience	.427*** (.034)	.352*** (.031)	.427*** (.034)	.352*** (.031)	.460*** (.038)	.417*** (.033)
Education * Gender			-.043 (.068)	-.219*** (.058)		
Self-employment experience * Gender					-.111*** (0.025)	-.281*** (.047)
Sector (NAICS)	Included	Included	Included	Included	Included	Included

Constant	-1.641*** (.088)	-1.353*** (.155)	-1.637*** (.087)	-1.344*** (.157)	-1.658*** (0.089)	-1.398*** (.160)
Log-Likelihood	-303282.56		-303227.34		-303207.53	
Total Observation	338,715		338,715		338,715	

Note: ***p < .001, **p < .01, *p < .05, †p<0.1 (two-tailed); Standard errors in parentheses.

[a]The reference category is "other race"

The results from the supplementary analysis corroborate the findings on the relationship between an entrepreneur's sex and the ownership structure of new businesses; female entrepreneurs are more likely to open either a solo enterprise or a family enterprise than a non-family business, relative to male entrepreneurs. In Model 1, the results indicate that being a female entrepreneur is associated with founding a business alone rather than being engaged in a start-up team by 93 percent (β= -0.659, p<0.001) after controlling for human capital variables (education level and self-employment experience). Also, being a female is associated with a 49 percent increase (β= -0.399, p<0.001) in creating a family business, relative to opening a non-family business.

In Models 2 and 3, I include the interaction variables of human capital and gender in order to identify whether human capital moderates the relationship between gender and ownership type. The results show that education and self-employment experience increase the odds of men belonging to a start-up team relative to being a solo owner by 30 percent (β= 0.259, p<0.001) and by 58 percent (β= 0.460, p<0.001) respectively. Similarly, among male entrepreneurs, the level of education is associated with a 31 percent increase (β= 0.267, p<0.001) in composing a non-family team rather than creating a family team. Also male entrepreneurs with self-employment experience are 52 percent (β=0.417, p<0.001) more

likely to be engaged in a non-family team compared to a family team; thus, experienced entrepreneurs are more likely to collaborate with a non-family member in forming an entrepreneurial team. However, these two variables that measure human capital do not impact female entrepreneurs as much as male entrepreneurs; the magnitude of their effect on women owners is significantly smaller than on men. Thus, among entrepreneurs with higher education, the gender difference in transition 2 (nonfamily vs. family team)) is even bigger (exp [-0.394-0.219]) than for the less educated. Likewise, among business owners with self-employment experience, being female is associated with a 106 percent increase (exp [-0.613-0.111]) in founding a firm alone as well as a 73 percent increase (exp [-0.268-0.281]) in sharing ownership with family members compared to male counterparts.

Regarding an entrepreneur's race, the results indicate that whites are significantly more likely to belong to a venture team, while blacks and Hispanics are less likely to. Also, black entrepreneurs are less likely to form a family business than those in the other race categories. The results from the SBO data support a U shape on the effect of age on businesses' ownership structure. In other words, entrepreneurs are more likely to open a non-family business as they get older, but after a certain age, they become less likely to open a business with non-family members. Further studies are needed to clarify the effect of age on the formation of new businesses. Finally, one's years of education also matter in the ownership structure of new businesses. The results show that entrepreneurs with college or graduate education are more likely to form an entrepreneurial team with non-family members, than a solo or a family enterprise.

In sum, the analyses support the hypothesis that an entrepreneur's gender has a significant influence on the ownership type of nascent businesses. Even after controlling for

the human capital and socio-demographic characteristics of entrepreneurs, female entrepreneurs are more likely to found a solo enterprise, in contrast to male counterparts. When they form an entrepreneurial team, they do so by recruiting family members rather than non-family members, such as co-workers in a previous workplace. These findings support the theoretical expectation that the limited and family-oriented nature of the social capital of females structures the manner in which female entrepreneurs open businesses.

2-5. Conclusion and Discussion

The current study illuminates the influence of an entrepreneur's gender on the formation of ownership structure in nascent ventures. In challenging the gender-neutral assumption that male and female entrepreneurs share a common social environment, I find that females are constrained to establishing solo businesses due to the lack of social capital, in comparison to males. Also, when they establish an entrepreneurial team, female entrepreneurs tend to utilize family ties rather than professional ones compared to their male counterpart. This study contributes important implications to the literature of gender and entrepreneurship.

First of all, this study expands our understanding of the different social environment that female entrepreneurs encounter. Despite the dramatic growth of women's participation in entrepreneurship, females are still less likely to form entrepreneurial firms compared to men. In addition to the gendered stereotype linking entrepreneurship to masculinity (Gupta, Turban, and Pareek 2013; Gupta et al. 2009), this study reveals an additional challenge faced by females which is their lack of social capital (Aldrich and Cliff 2003; Cromie and Birley

1992; Lin 2000; Greve and Salaff 2003; Klyver 2011). While establishing an entrepreneurial team can be beneficial in certain industries, females are limited in their social capital to recruit partners who bring unique skill sets to their team. Due to this limited social capital, females are forced to launch their firms by themselves. In particular, their limited professional connections become a barrier to founding a firm with co-workers from a previous workplace. Entrepreneurship research can further benefit from extending its focus to the role of social capital in the ownership structure of nascent businesses.

In addition, the current study contributes to the literature on family and entrepreneurship. Recent studies have increasingly emphasized the embedded nature of entrepreneurial activities within family relationships (Aldrich and Cliff 2003; Brannon, Wiklund, and Haynie 2013; Greve and Salaff 2003; Orhan 2001)). Until now, however, few studies have shed light on how entrepreneurs recruit their family members in their new firms (Ruef et al. 2003). This current study shows that females – who tend to have more limited social capital than males – can utilize family networks as a substitute for their limited professional networks. The results imply that female entrepreneurs can recruit emotionally-intimate family members to their nascent firms as a way both to add a complementary skill-set to the firm as well as attain a better balance between work and family.

Notwithstanding the robust findings that support the relationship between an entrepreneur's gender and the ownership structure of businesses, I acknowledge that there room remains for future studies to deepen our understanding of the gendered formation of entrepreneurial businesses. First of all, although this research regards the process of nascent venture team formation as the primary owner's recruitment of his/her partners, datasets unfortunately do not allow me to explicitly identify whether a woman entrepreneur actively

chooses or selects team members or rather is not chosen by others as a team member unless she is married to or is the kin tie of the person trying to found a new business. Future research can undertake a more detailed process to recruit co-owners for firm founding. Second, I was not able to control for the preexisting social relationships of entrepreneurs who prepare to launch a firm. Data with complete information on the social networks of female entrepreneurs will allow researchers to further illuminate the exact role of social capital in the launching of entrepreneurial businesses. Also, the role of the gendered stereotype on entrepreneurial activities is not fully examined in this study of the formation process of entrepreneurship. While I indicate the lack of social capital among females as the main mechanism through which they are more likely than males to open either a solo or a family enterprise instead of a non-family enterprise, I am not certain about how the stereotypes linking entrepreneurship with independence and masculinity influence the decisions by females to launch a firm by themselves, rather than to form a team with partners. Future study needs to disentangle the relationship among gender stereotype, social capital, and the formation of entrepreneurial firms.

In this study, I challenge the individualistic assumption that the decision of economic actors is exclusively based on their rational calculation to maximize their utility as atomic actors. This research suggests that the decisions of entrepreneurs to recruit a co-founder in their firms are embedded in the gendered social system to which they belong. As females and males are embedded in different sets of social relationships, I conclude that the decision of entrepreneurs to choose a particular ownership structure is heavily influenced by the entrepreneur's gender.

APPENDIX

Table 2-A. Descriptive Statistics of Dependent and Independent Variables: The SBO PUMS Dataset (N = 335,501)

Variables	Mean	S.D.	Min.	Max.
Firm Type	1.563	…	1	3
(Solo=1; Family=2; Non-family=3)				
Female	0.345	…	0	1
Race: White	0.853	…	0	1
Race: Black	0.057	…	0	1
Race: Hispanic	0.082	…	0	1
Race: Others	0.008	…	0	1
Age	3.502	1.200	1	6
Education Level	-0.053	0.677	-1	1
Self-employment experience	0.447	…	0	1
Industrial Categories (NAICS Sector)	51.462	15.498	11	99

Table 2-B. Frequency Table of Industrial Sectors by an Entrepreneur's Gender (NAICS)
The SBO PUMS Dataset (N = 335,501)

SECTOR	*Male*		*Female*	
	Frequency	Percent	Frequency	Percent
11. Agriculture, Forestry, Fishing and Hunting	1,856	0.79	493	0.21
21. Mining, Quarrying, and Oil and Gas Extraction	1,563	0.82	349	0.18
22. Utilities	471	0.78	133	0.22
23. Construction	34,033	0.88	4,852	0.12
31. Manufacturing	8,746	0.70	3,668	0.30
42. Wholesale Trade	7,675	0.74	2,759	0.26
44. Retail Trade	20,762	0.55	16,680	0.45
48. Transportation and Warehousing	12,333	0.82	2,765	0.18
51. Information	5,819	0.68	2,770	0.32
52. Finance and Insurance	10,746	0.74	3,748	0.26
53. Real Estate and Rental and Leasing	20,299	0.67	9,997	0.33
54. Professional, Scientific, and Technical Services	35,533	0.63	20,798	0.37
55. Management of Companies and Enterprises	403	0.92	33	0.08
56. Administrative and Support and Waste Management and Remediation Services	12,933	0.57	9,948	0.43
61. Educational Services	3,277	0.42	4,473	0.58
62. Health Care and Social Assistance	10,502	0.41	14,996	0.59
71. Arts, Entertainment, and Recreation	7,874	0.58	5,613	0.42
72. Accommodation and Food Services	7,382	0.70	3,153	0.30
81. Other Services (except Public Administration)	13,154	0.51	12,646	0.49

In Table 2-C, I compare the results for three different data sources, PSED I/PSED II/SBO, in order to identify whether the gender effect on business types are consistent, robust, and significant. Thus, models in these analyses only include predictors present in all three datasets.

Table 2-C. Sequential Logistic Regression on the Relationship between an Entrepreneur's Gender and Business Type (Across All Three Datasets)

	PSED I+II				PSED I				PSED II				SBO			
	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family	team vs. solo	non-family vs. family
Gender(female)	-.37*** (.11)	-.92*** (.18)	-.41* (.16)	-.92** (.30)	-.74*** (.21)	-1.35*** (.27)\	-1.59 (1.13)	-1.54*** (.25)	-.22† (.13)	-.68** (.24)	-.18 (.18)	-.93** (.31)	-.66*** (.07)	-.39*** (.05)	-.61*** (.07)	-.27*** (.06)
Race[a]: White	.18 (.22)	-.39 (.31)	.18 (.22)	-.39 (.31)	.02 (.51)	-.52 (.69)	-.02 (.49)	-.55 (.62)	.28 (.26)	-.24 (.38)	.26 (.26)	-.20 (.38)	.41*** (.04)	.12** (.04)	.41*** (.04)	.12** (.04)
Race: Black	-.11 (.24)	-.31 (.34)	-.13 (.24)	-.31 (.34)	-.20 (.53)	-.32 (.72)	-.25 (.51)	-.34 (.66)	-.14 (.30)	-.47 (.45)	-.17 (.30)	-.43 (.45)	-.05 (.06)	.17*** (.05)	-.05 (.06)	.17*** (.04)
Race: Hispanic	.23 (.27)	-.43 (.41)	.21 (.27)	-.43 (.41)	.28 (.59)	-.68 (.77)	.24 (.57)	-.75 (.71)	.13 (.35)	-.18 (.57)	.10 (.35)	-.14 (.56)	-.17*** (.03)	-.02 (.05)	-.17*** (.03)	-.02 (.05)
Race: Asian	-.35 (.62)	-.17 (.79)	-.33 (.61)	-.17 (.79)	1.26† (.73)	-.49 (.99)	1.08 (.73)	-.50 (.97)	-.20 (.68)	.04 (1.10)	-.18 (.67)	.05 (1.13)	.16** (.06)	.06 (.08)	.16** (.06)	.06 (.08)
Age	-.08*** (.02)	-.05 (.04)	-.08*** (.02)	-.05 (.04)	-.14** (.05)	-.13* (.05)	-.14** (.05)	-.13* (.05)	-.06* (.03)	-.02 (.05)	-.06* (.03)	-.02 (.05)	.57*** (.05)	.16* (.07)	.57*** (.05)	.17* (.07)
Age squared	.00** (.00)	.00 (.00)	.00** (.00)	.00 (.00)	.00* (.00)	.00* (.00)	.00* (.00)	.00* (.00)	.00† (.00)	.00 (.00)	.00† (.00)	.00 (.00)	-.07*** (.01)	-.036*** (.008)	-.07*** (.01)	-.04*** (.01)

Education level [a]	.22* (.09)	.21 (.13)	.05 (.07)	.21† (.11)	.10 (.18)	.56** (.19)	-.18 (.12)	.35* (.15)	.34** (.12)	-.04 (.20)	.22* (.10)	.06 (.17)	.26*** (.08)	.27*** (.04)	.25*** (.07)	.22*** (.03)
Start-up Experience [b] (Self-employment Experience)	.96*** (.11)	.03 (.22)	.86*** (.14)	.03 (24)	5.02*** (.47)	-2.78 (2.35)	4.70*** (.54)	-1.98 (1.21)	.11 (.13)	.11 (.23)	.10 (.16)	-.02 (.26)	.43*** (.03)	.35*** (.03)	.46*** (.04)	.42*** (.03)
Education level * Gender(female)	-.40** (.14)	-.02 (.24)			-.49* (.23)	-.56† (.31)			-.38† (.21)	.40 (.41)			-.04 (.07)	-.22*** (.06)		
Start-up Experience* Gender(female)			.22 (.20)	.00 (.35)			1.05 (1.14)	1.21 (.86)			-.01 (.26)	.46 (.45)			-.11*** (0.03)	-.28*** (.05)
Industry dummies	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
PSED dummy	Incl.	Incl.	Incl.	Incl.	…	…	…	…	…	…	…	…	…	…	…	…
Wave dummies	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	…	…	…	…
Constant	1.40* (.60)	2.52** (.91)	1.46* (.60)	2.52** (.90)	-1.11*** (1.27)	6.57*** (1.92)	-.86 (1.25)	5.70** (1.81)	.99 (.69)	1.03 (1.14)	.99 (.68)	1.05 (1.14)	-1.64*** (.09)	-1.34*** (.16)	-1.66*** (.09)	-1.40*** (.16)
Log-likelihood	-6262.01		-6274.66		-1992.75		-2003.65		-3882.78		-3889.20		-303227.34		-303207.53	
Total Observation (N)	6,827		6,827		2,549		2,549		4,278		4,278		338,715		338,715	
Cluster	2,018		2,018		817		817		1,214		1,214		…		…	

Note: $^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$, $^{\dagger}p<0.1$ (two-tailed); Standard errors in parentheses.

[a]The base category is "other race"

[b] Although prior experience as an entrepreneur in PSED is originally measured as the number of start-ups that respondents previously helped to found, in this analysis, it is transformed into a binary variable like that in SBO in order to compare the results of all 3 data sources

The results show that females are more likely to found solo-businesses or to share ownership with family members compared to male owners. Regarding human capital variables, education level and prior entrepreneurial experience have a positive influence on creating a team relative to founding a solo firm, and then for entrepreneurs engaged in a team, these predictors increase the likelihood of establishing a non-family business (vs. family business). Also these merit-based variables significantly increase the odds of men both creating entrepreneurial teams and non-family businesses. However, the magnitude of their impact on female entrepreneurs is much smaller than on male entrepreneurs; thus among highly-educated or experienced entrepreneurs, the gender difference becomes even larger.

CHAPTER 3.

MEMBER EXIT AND ENTRY: THE ROLE OF RELATIONAL COMPOSITION IN MEMBERSHIP CHANGE IN NASCENT ENTREPRENEURIAL TEAMS

3-1. Introduction

Entrepreneurial founder teams often experience membership change (Cooper and Bruno 1977; Boyd and Gumpert 1983). Timmons (1990) found that almost every venture team drops at least one founder during a five-year period. Membership change shows how new venture teams develop over time. Previous studies found that the compositional effect of skills or functions among team members predicts new venture team turnover (Ucbasaran et al. 2003; Beckman and Burton 2007; Boeker and Wiltbank 2005). For instance, Ucbasaran, Lockett, Wright, and Westhead (2003) found that skill diversity leads to new member entry while heterogeneity of entrepreneurial experience is positively associated with existing member exit. Other studies on demographic composition found that demographic heterogeneity (i.e. gender, race, tenure, education) has an impact on team turnover (Beckman and Burton 2007; Wiersema and Bird 1993). Although these studies successfully capture the effect of team composition based on functional and demographic characteristics on membership change, what has rarely been examined is how the relational composition of entrepreneurial founder teams is associated with membership change.

Relational composition refers to the configuration of social relationships among members in a team (Aldrich, Carter, and Ruef 2007). This phenomenon is especially important in the study of entrepreneurial founder teams because the formation and behavior

of these teams are different from those of existing work teams. Firm creation requires a certain level of trust between collaborators so that venture teams are generally founded by individuals who have preexisting social ties with others (Ruef, Aldrich, and Carter 2003; Yang and Aldrich 2014). Thus, start-up firms created by family members, friends, and/or colleagues are easily found. Since different social relationships have different tie strength and relationship quality (Granovetter 1973), a venture team's relational composition may have an impact on the patterns of how members interact, communicate, collaborate, and make decisions. As membership change is closely related to such team processes, I believe it to be influenced by the relational composition of the team.

This paper introduces a new typology of entrepreneurial founder teams based on social relationships among founders, and it examines its role in membership change. In particular, team types are classified into three: family-only teams composed of exclusively family members, mixed teams composed of family and non-family members, and non-family teams formed of only non-family members. Previous studies examining family affiliations in venture teams have compared behavior and outcomes of family businesses to those of non-family ones (Arregle et al 2015; Craig et al. 2009; Dyer 2006; Heck and Mishra 2008; Randerson et al. 2015). This conventional distinction neglects an important type of team composition, namely that of mixed teams. Since mixed teams are comprised of both family and non-family members, their traits and characteristics may differ from family-only and non-family teams. And these characteristics can shape team turnover differently.

In this regard, this study aims to explore the underexplored area of relational composition and its effect on membership change in entrepreneurial founder teams. Membership change depicts the process of team formation and evolution so that scholars can

effectively compare different developmental paths across teams. This paper distinguishes between the departure of an existing member (member exit) and the introduction of a new member (member entry) since both changes map the process of team formation and transition. Also, the direction of the association between relational composition and member exit may not necessarily be the same as that of member entry.

Furthermore, this study limits its scope of analysis to the nascent stage of entrepreneurial founder teams for two reasons. First, membership change may be more critical and common in the evolving phase of the team. Early teams tend to be composed of a small number of founders so that the impact of social interaction between members in teamwork is more crucial. Second, to study nascent teams allows us to identify emerging teams and to track their formative and developmental stages, and thus to overcome the *left-censoring problem* that entrepreneurship research generally confronts (Aldrich 1999).

In the following section, I describe in detail a team typology based on relational composition and discuss the related? theoretical background so as to develop hypotheses on the relationship between the relational composition and membership change of entrepreneurial founding teams. The third section discusses the sample, methodology, and variables used. Results are presented in the fourth section, and the conclusion and discussion follow in the fifth section.

3-2. Theoretical Background

The membership change in an entrepreneurial team is an important dimension to detect the formation and changes of new ventures over time, and it may further influence

entrepreneurial performance (Chandler, Honig, and Wiklund 2005; Kim, Aldrich, and Ruef 2005). Membership change in entrepreneurial teams may be more influential and more dynamic in the fate of new ventures compared to the turnover in top management teams in large established firms because the size of a team tends to be smaller; as a result, one individual's skills and resources are more critical and his/her exit and/or entry is influential to later outcomes (Timmons and Spinelli 2004; Ucbasaran et al. 2003). However, team turnover has been understudied in entrepreneurship literature. Recently, a few studies have explored which antecedents influence the membership change of new venture teams. These studies are mainly based on theoretical backgrounds developed in the top management team literature that views turnover of team members as an adaptive mechanism (Boeker 1997). For instance, Chandler, Honig, and Wiklund (2005) found that additions and departures of members are contingent on the functional heterogeneity of venture teams, by studying Swedish and U.S. venture teams. Ucbasaran, Lockett, Wright, and Westhead (2003) also found that the functional diversity and heterogeneity of prior entrepreneurial experience are associated with member entry and exit through an examination of a sample of small and medium-sized private enterprises in U.K. Although these studies effectively depict the turnover of venture teams, their perspectives focus mainly on members' tasks and functions, and consider membership change as a team's strategic action.

However, in entrepreneurial teams, task-related composition may not be the only factor affecting turnover. Relationship-related composition may be especially important when studying entrepreneurial teams compared to existing work teams since the formation of start-up teams is constrained by entrepreneurs' pre-existing network ties such as family, friends, and colleagues. Different types of social relations have different relationship quality,

tie strength, and also have distinctive ways of interaction and communication between actors. Thus, the composition of interpersonal relationships among team members may affect the interactional processes and dynamics of a new venture team. Team turnover not only shows how a team develops, evolves, and changes over time but is also closely associated with interpersonal interactions among team members. In this regard, this chapter addresses the effect of the relational composition on their membership turnover of entrepreneurial founder teams.

Internal network ties are differentiated into family and non-family members in this study because family ties have distinctive characteristics from non-family ties; they are the strongest bonds and are hardly dissociated, and they are bounded by loyalty and trust compared to non-family ties. For instance, family ties in businesses often function as a steward rather than an agent. According to this distinction, this study introduces the typology of the relational composition of start-up teams: family-only teams, mixed teams composed of family and non-family members, and non-family teams. By examining the compositional effect of within-team-network on membership turnover allows me to capture whether the development and evolution of entrepreneurial teams are embedded in social relations. This study separates membership change into the joining and leaving from a start-up team.

Relational Composition: Family-Only, Mixed, & Non-Family Teams.

To create a venture team, the choice of partners is inevitably dependent upon entrepreneurs' structural opportunities for social contact (Blau 1977; Ruef, Aldrich, and Carter, 2003). In other words, it is constrained by preexisting social ties as mentioned above.

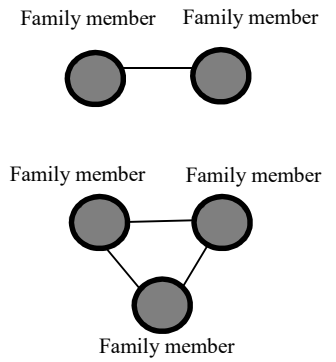
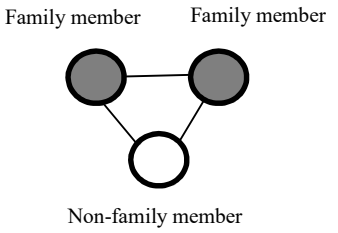
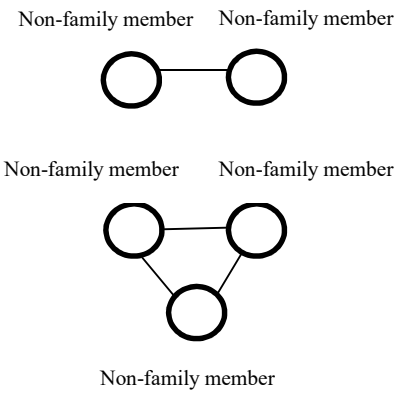
Prior research on social relationships, preexisting ties can be broadly categorized into three concentric circles of social relationships: family members, friends and acquaintances, and strangers (Aldrich, Elam, and Reese 1996; Granovetter 1973; Ruef et al. 2003). I adopt this academic tradition, but focus more on the distinction between family and non-family members, since the family has unique characteristics compared to other types of social ties in terms of relationship quality.

Family is a group where biological (e.g. father-son, sister-brother) and legal ties (e.g. husband-wife) bind together. Since family members have a long history of every-day experience with one another, family creates the highest levels of trust and emotional bonds, compared to any other social institutions (Coleman 1990). Family members have frequent interaction with each other, and are more likely to share ideas, norms and values (Craig et al. 2009; Webb, Ketchen, and Ireland 2010). Social capital theory has documented that family members are based on bonding capital while non-family members, having more heterogeneous backgrounds outside of the family circle, are likely to produce bridging capital (Putnam 2000). With regard to entrepreneurship, family members may have frequent opportunities to discuss ideas about founding a new business and provide consistent help. Although potential entrepreneurs can discuss business ideas or plans with non-kin ties, business ideas and plans shared among kin may be more consistent and cumulative for action (Ruef et al. 2003).

Given that family relationships are the strongest ties and present the highest level of trust, I introduce a typology based on the extent to which the team composition places reliance on family rather than on non-family members: family-only teams, mixed teams, and non-family teams. Figure 1 shows the typology and the description of these team types. As

shown in Figure 3-1, family-only teams are exclusively composed of family members and tend to have the highest level of cohesion.

Figure 3-1. The Relational Typology of Entrepreneurial Teams

Team Type		Team Characteristics
Family Teams		**Family-only teams**: Entrepreneurial teams exclusively composed of family members (e.g. spousal pair, parent-children team). This type of team is likely to be the most cohesive and to be group-oriented.
		**Mixed teams**: Entrepreneurial teams composed of a mix of family and non-family members. Since two different types of ties coexist in a team, faultlines between two subgroups may emerge in a team.
Non-Family Teams		**Non-family teams**: Entrepreneurial teams exclusively composed of non-family members. This type of team is likely to be goal-oriented and individualistic.

Mixed teams are comprised of both family and non-family members. In this team, there may be faultlines and conflict within a team since two different types of ties coexist within one team. Non-family teams composed of founders who are friends or work-related acquaintances with each other may be the most diverse. Considering the findings that the structure, composition and/or functioning of the team influence variance in team turnover, this study examines whether and how the relational composition of entrepreneurial founder teams shapes member exit and entry.

Although the membership change of a team can be distinguished into member exit and member entry, previous literature on team turnover has been heavily weighted towards member exit (Jackson et al. 1991; Walsh and Ellwood 1991; Wiersema and Bantel 1993; Krug and Hegarty 1997). This is because this topic has mainly been studied in research on top management teams of large established firms (Ucbasaran et al. 2003); the team size is much larger than venture teams so that the necessary range of skills and roles are already present. Thus, member entry may be a less important issue. However, it can be as important as member exit in entrepreneurial teams. Private venture teams tend to be smaller and lack a wide range of skills and ideas needed for the development of the new firm. Also, skills and roles needed may change quickly while the new business develops over time (Gartner, Bird, and Starr 1992). Therefore, this study sheds light on both member exit and member entry, and also examines and compares the roles of relational composition on each change in team membership.

Relational Composition and Membership Change

Prior research has provided two general explanations about why member turnover occurs in a team. The first view considers that membership change is driven by instrumental and strategic reasons. Both the dismissal of an existing member and the addition of a new one occur in response to the changing needs for skills and resources in a team (Barron, Chulkov, and Waddell 2011; Wiersema and Bantel 1993). The second view focuses on the effect of the demographic composition of a team. For instance, scholars find that demographic diversity (i.e. race, gender) affects group members' social integration, which leads to member turnover (O'Reilly, Caldwell, and Barnett 1989; Wiersema and Bird 1993).

What is rarely examined in the literature is the role of relational composition in membership change. Relational composition is a particularly important dimension in entrepreneurial teams since start-up teams are autonomous groups that tend to be formed by people already familiar with each other. As mentioned above, I introduce a typology of founder team types based on relational composition, family-only teams, mixed teams composed of family and non-family members, and non-family teams and then examine its role in membership change, of both member exit and entry.

Compared to a solo entrepreneur, entrepreneurial founding teams inevitably face the need to coordinate the roles and tasks of multiple members, since multiple founders have their own roles and rights in decision-making in the founding phase. A venture owned and managed by a team should interrelate the tasks and roles of team members in a synchronized fashion as well as facilitate communication among them because well-integrated teamwork is beneficial to a team's goals and outcomes (Gully, Devine, and Whitney 1995; Smith et al. 1994). Difficulties with the coordination and integration of team members are connected to the cohesion of the team (Ucbasaran et al. 2003). In teams with lower cohesion, membership

stability becomes compromised. Previous studies have found that team cohesion increases trust and satisfaction with the team among team members, while decreasing affective conflict that can lead to the incidence of team member exit (Ensley, Pearson, and Amason 2002; O'Reilly et al. 1989).

Considering the finding that team cohesion is closely associated with close social relationships (Ensley et al. 2002; O'Reilly et al. 1989), the relational composition of a team may affect its membership stability/change. Interpersonal relationships and member familiarity facilitate coordination and encourage positive teamwork (Gruenfeld, Mannix, Williams, and Neale 1996; Rockett and Okhuysen 2002). Stability and continuity in social relationships also promote a strong group identity that reduces intra group conflict and increase efforts made for the team (Brewer and Miller 1984; Gaertner, Dovidio, and Bachman 1996). Accordingly, a variance in membership stability/change is dependent on the relationship strength and quality among team members.

Team Types and Membership Change

Family is defined as "a group of intimates who generate a sense of home and group identity, who experience a shared history and a shared future" (Koerner and Fitzpatrick 2004, p. 71). Family members have emotional bonds, shared norms and strong identity, and thus, tend to have the highest levels of trust in one another. From a social network perspective, family relationships (i.e. spouse, siblings) are the strongest ties, and family is the highest cohesive group (Aldrich et al. 1996; Coleman 1990; Granovetter 1985). Therefore, family-only teams composed of exclusively family members tend to be more

cohesive than mixed- or non-family teams.

Zahra and his colleagues (2004) argue that family businesses where kinship relationships bind their members are likely to be strongly group-oriented; they stress cooperation and collaboration in business' decision-making processes. In teams with these group-oriented cultures, members are bonded by loyalty and family tradition rather than by formal contract. This type of organizations emphasizes interpersonal cohesion, collective identity, commitment and human resources among members (Cameron and Freeman 1991).

Strong membership may make entrepreneurs in family-only teams remain in difficult times as well as in good times; strong personal relationships often come with social obligation within the team. Also, when considering withdrawal from the team, a member considers the costs and benefits associated with the decision (Francis and Sandberg 2000). In cohesive family teams, the costs of exit may include the psychological costs as well as economic ones (Ucbasaran et al. 2003). For instance, in spousal teams where husband and wife share a household as well as a workplace, leaving the team could be related to a breakup of the relationship and end in separation or divorce. The extra burden on departing from the team may reduce the exit of an existing member in a family-only team.

Also, since the entry of a new member can weaken the intimacy of a shared group identity and bring uncertainty to the team (Moreland and Levine 2002), family-only teams with strong in-group cohesion hesitate to add a new partner. Teams with strong in-group identity and group-oriented cultures may be more particular about new member addition. In this sense, membership may be the most stable in family-only teams. From this logit, I derive the following hypothesis.

H3-1. Family-only teams will be the least likely to experience membership change compared to mixed teams and non-family teams.

Meanwhile, mixed teams may face more complicated situations. Since they are comprised of both family and non-family members, there is a high probability that disagreement and conflict will arise between these two types of founders. Strong family ties can transform into a favoritism for family members over non-family members and hinder social integration among founders (Pearson, Carr, and Shaw 2008). Previous research on work teams found that divides arise when different subgroups comprise one work team (Lau and Murninghan 1998; 2005). These are called "faultlines", which have been defined as "hypothetical dividing lines that split a group into relatively homogenous subgroups based on demographic alignment along multiple attributes" (Bezrukova et al. 2009, p.35). Although early faultline studies focused on divides based on demographic and inherent traits, research is extended to "factional faultlines", which sheds light on social entities (Li and Hambrick 2005) such as family vs. non-family, and founders vs. investors.

Individuals in teams with a salient and strong faultline tend to categorize other team members as their in-group versus out-group (Lau and Murninghan 1998; 2005). Tension within a team creates dissatisfaction among group members (Amason and Schweiger 1994; Jehn 1994) and results in members quitting. At the team level as well, team faultlines hinder social integration between subgroups within one team, and lower cohesion and group identification. Furthermore, this lowered social integration can promote conflicts between subgroups (Amason 1996; Jehn 1997) which impact an existing member's decision to leave the team (Bezrukova et al. 2012).

Faultlines in mixed teams may also hinder new member entry. Although a new member can bring innovative and needed resources to a team, member addition is not always a strategic choice. A team's unstable atmosphere caused by a low level of social integration make existing members reluctant to recruit a new partner member so as to avoid a higher level of conflict that a new member can cause, even in times when the team requires new ideas or capital. Since new member addition potentially changes team culture and the direction of a new business (Ucbasaran et al. 2003), the lower level of social integration in mixed teams leads to an unwillingness to add a new partner. Also, a high level of member dismissal in a mixed team can accelerate the decrease in its social cohesion (O'Reilly et al. 1989; Smith et al. 1994); this can impede new member addition as well. From these logics, the following hypothesis can be derived:

H3-2. Mixed-teams will have more founder exit than family-only teams.[5]

Finally, non-family teams are formed exclusively by non-family members. While family members in venture teams tend to identify themselves with the group, non-family members are likely to be more individualistic. Since founders of this type of team have social relationships with friends or prior work-related ties with each other, their relationship quality may be different from family relationships. Although the relationships among non-family members can be as close and familiar as family ties, their couplings in a team are likely to be more flexible and strongly based on the goal of the business rather than on

[5] The likelihood of new member addition may be low both in family-only teams and in mixed teams although the mechanisms are different from each other. Thus, the hypothesis related to member entry of mixed teams compared to family-only teams is not derived in this study.

loyalty toward interpersonal relationships.

Accordingly, the membership changes in non-family teams are likely to be driven by strategic and instrumental decision making for entrepreneurial projects. Also, members of non-family teams may feel less social obligation toward the business and make decisions more independently relative to family-only teams. In other words, both member entry and exit may occur more frequently and actively for venture creation in order to adapt to the changing needs for skills, capabilities and resources. Therefore, from the arguments made above, I derive the following hypotheses:

H3-3a. Non-family teams will have more founder exit than family-only teams.

H3-3b. Non-family teams will have more founder entry than family-only teams.

3-3. Data, Variables, and Methods

Data

Chapter 3 analyzes the merged dataset of the Panel Study of Entrepreneurial Dynamics I (PSED I) and II (PSED II) in order to obtain more statistical power. Although each database surveyed different respondents, both targeted the same population and share similar questionnaires that facilitate combining them. Both data surveyed a nationally representative sample of nascent entrepreneurs, people actively involved in the process of starting a new business as an owner but who have not yet achieved profit from that business in the U. S. (Gartner et al. 2004). This sample is obtained via phone interviews with a very large number of people selected through random digit dialing. Qualified nascent

entrepreneurs determined by screening questionnaires are directed to a comprehensive interview; they are defined as respondents who have engaged in entrepreneurial activity in the past 12 months, own equity in the new business, and have not yet achieved revenues sufficient to cover expenses. Eligible respondents are interviewed again every 6-12 months over 2 to 5 years to follow their answers to questions on the activities undertaken during the start-up process, and the characteristics of entrepreneurs or entrepreneurial teams that pursue the creation of new firms. PSED I began with screening in 1998-2000, followed by three interviews (four waves in total) while PSED II had six yearly interviews from 2005 to 2010. From this full data, I only selected the cases of nascent businesses owned by multiple individuals so that the businesses of solo owners were dropped from the analysis. Among 2,044 respondents (PSED I=830, PSED II=1,214), the number of solo enterprises is 1,043 (51%, PSED I=415, PSED II=628). After removing some venture teams with missing values in variables, the total number of the final sample is 972 (PSED I=415, PSED II=557).

Since this study examines the role of the relational composition of an entrepreneurial team in member turnover, PSED is relevant data. The questionnaire contains detailed questions on entrepreneurs and their team/businesses. PSED I and II survey the traits of owners, the social relationships between owners in a venture team, and whether the business adds a new member and/or drops an existing member. Also, the longitudinal design of these databases permits the examination of how business process issues develop and change over time. Further, the real time assessment on the start-up process reduces the possibility of memory decay and hindsight bias. In the following sub-sections, I will describe how the variables used in this study are operationalized and measured.

Dependent Variables

The outcome variable is membership change that can be distinguished into two types: member exit and member entry. The questions asking membership change in PSED I were different from those in PSED II, thus these variables should be recoded into a coherent form. With regard to *member exit*, in PSED I during each wave of data collection from wave 2, respondents were asked "Who, if anyone, is no longer involved with the new business?". If respondents nominated an owner or owners, I coded this as variable 1; otherwise, it was coded 0. In PSED II, respondents were asked the question "In our last interview, you indicated that you and other owners own the business. Is this still correct?" and they answered from choices "1=Yes, 2=No, add an owner, 5=No, delete an owner, 6=No, both add and delete owners, 8=DK, 9=NA". If they answered "No, delete an owner" or "No, both add and delete owners", I coded this as variable 1; otherwise it was coded 0. About *member entry,* PSED I asked respondents the question "How many new owners have taken an ownership share in the new firm in the past year, since the last interview?". If respondents answered "1 or more", I coded this as variable 1; if respondents answered "0", it was coded 0. Also, I used the same question above that asked about member exit in PSED II. If respondents answered "No, add an owner" or "No, both add and delete owners", it was coded 1; otherwise I coded 0.

Independent Variables

Critical explanatory variables are dummy variables of each type of entrepreneurial founder team: family-only teams, mixed teams, and non-family teams. These were operationalized from the answers to the questions on the relationships between owners. Both

PSED I and PSED II originally categorized the relationships between owners into the following groups: spouses, partners sharing a household, relatives living in the same household, relatives living in different households, friends or acquaintances from work, friends or acquaintances you have not worked with, strangers before joining the new business team, and partners living in different households. From this raw categorization, I re-categorized them into either family (spouses, partners sharing a household, relatives living in the same household, and relatives living in different households), or non-family (friends or acquaintances from work, friends or acquaintances you have not worked with, strangers before joining the new business team, and partners living in different households). Among the total number of 974 teams, the number of family-only teams is 610 (62.6%), the number of mixed teams is 71 (7.3%), and the number of non-family teams is 293 (30.1%).

Family-only team was coded 1 if the business was exclusively comprised of family members; otherwise, it was coded 0. *Mixed team* was coded 1 if the business was composed of family members and non-family members; otherwise, I coded 0. *Non-family team* was coded 1 if the business was exclusively composed of non-family members; otherwise, it was coded 0. Family-only team was the reference category. These variables were measured during every observation period. When information was not available, I used the last available response and assumed there was no change in the team type across waves.

Control Variables

Important milestones in nascent businesses' development were controlled for because membership change depends on the needs for skills and resources that are changing across the start-up process. Specifically, I controlled for three events: whether a business

established a concrete business plan, the level in which a business was prepared to provide product or service, whether a business developed a financial projection such as income or cash flow statements. These milestones may make teams hire new members for strategic purposes to provide needed skills and resources. *Having business plan* and *having financial projection* are the binary variables; if respondents answered "Yes", they were coded as 1; otherwise, I coded as 0. *Preparing product/service* is an ordinal variable measuring the level of product/service development of the business; if the business was still in the idea stage, it was coded 1; if model/procedure was being developed in the business, it was coded 2; if prototype/procedure tested with customers, it was coded 3; if the business was completed and ready for sale or delivery, it was coded 4.

Team-level characteristics, especially factors related to human capital and demography in a team, were also controlled for because the overall level of human capital and demographic traits in a team can influence member turnover. I consider seven criteria: (1) *number of total owners* is a measure of founding team size; (2) a *two-person team* is included in order to control for the tendency where family-only teams and non-family teams can be formed by two members, while mixed teams are composed of at least three members; (3) *business age* measured by years that have passed since the team first considered starting a new business; (4) average *years of work experience* in the same industry where a new firm is created of team members; (5) *start-up experience* – average number of start-ups that owners previously created; (6) average *member age* and *member age squared*; (7) *female proportion* in a team; (8) *racial diversity* of a team. Criteria (4) and (5) directly concern the quality of human capital embedded in a team and task competence to create a new firm, while (6), (7), and (8) are related to the demographic composition of owners. I use the

Shannon's H index (using the formula: $-\sum_{i=1}^{s} p_i \ln p_i$, where p is the proportion of individuals of one particular category, ln is the natural log and s is the number of categories) as the measure of racial diversity; this index is commonly used to measure species diversity in biology. Higher values reflect greater diversity; the maximum value is obtained when all demographic groups, here racial categories, have the same proportion.

Other control variables related to exogenous factors were used in the models. All of these are dummy variables. Since I used the merged dataset of PSED I and PSED II, I included the variable of *PSED dummy* to control for its possible influence on the variance in membership change; if a team belonged to PSED I, it was coded 1; otherwise, I coded as 0. Also, *sector dummies*[6] , *region dummies*[7] and *year dummies* were included.

Method

In this paper, I capture how quickly a business experiences each event of member exit and member entry; the unit of a business's time to the events is "a year" since these events are determined for each survey year that the data are collected and recorded in PSED. In a longitudinal study, there is always a probability that entrepreneurial teams that are stable in membership at one time will experience member exit and/or entry in a later time period. Thus, it is impossible to establish a timeframe sufficiently long to ensure that every team experiences team turnover. So, the standard regression models are less appropriate. To deal with this problem, this study employs event history analysis that treats teams having no

[6] Sectors are differentiated into 16 categories: (1) retail store; (2) restaurant tavern, bar, or nightclub; (3) customer or consumer service; (4) health, education or social services; (5) manufacturing; (6) construction; (7) agriculture; (8) mining; (9) wholesale distribution; (10) transportation; (11) utilities; (12) communications; (13) finance; (14) insurance; (15) real estate; (16) business consulting or service

[7] Regions are categorized into four parts: (1) West; (2) North Central; (3) North East; (4) South

membership change as censored in the last observation period; event history analysis helps me to generate unbiased estimates of the outcomes. When the annual longitudinal surveys end, the businesses that do not experience the event at the end point of surveys are right-censored. Businesses that discontinue start-up activities during the study period are also treated as censored observations.

Among the three available models of event history analysis: non-parametric models, parametric models, and semi-parametric models (the Cox regression), I choose the Cox proportional hazard regression models (Cox 1972) to test hypotheses. Models are specified as the following formula:

$$h_i(t) = h_o(t) \times exp\{\sum \beta_k \times [X_{ik}(t)]\}$$

where $h_o(t)$ is the baseline hazard function, and $X_{ik}(t)$ is the team i's value of the kth independent variable at time t. Cox regression models have no pre-assumption about the distribution of the baseline hazard function; these models are appropriate in my analyses because the baseline survival function of membership change is not specified (Blossfeld, Golsch, and Rohwer 2007). Also, the Cox model easily incorporates time-varying covariates (Hosmer, Lemeshow, and May 2008) and accommodates the discrete measurement of event time (Coleman, Cotei and Farhat 2010). The effects of time-varying covariates are estimated by using the Efron method to deal with the even time ties. Also, robust standard errors are clustered by each respondent team.

In the dataset for this study, the failure events (in event history terminology) are the occurrence of (1) member exit and (2) member entry. Cox proportional hazard models provide both regression coefficients and hazard ratios. I present regression coefficients in the

result tables but interpret them as hazard ratios for easier understanding.

3-4. Results

Descriptive statistics and correlation coefficients among variables used in the analyses are reported in Table 3-1. As expected, family-only teams are negatively associated with member exit (r = -.18), and also with member entry (r = -.10). It is noteworthy that the proportion of female owners is positively correlated with family-only teams (r = .32) but is negatively associated with non-family teams (r = -.24); these are results consistent with the findings in Chapter 2. Positive correlation between team size (the number of total owners) and mixed teams is also relatively high (r= .43); this is because both family-only and non-family teams can be formed by two individuals while mixed teams are composed of at least three owners. Similarly, positive correlation between two-person team and family-only teams is also high (r= .52); in the samples used in this study, spousal pairs count for about 75% of family-only teams.

Table 3-1. Descriptive Statistics and Correlations

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Family-only team	.59	.49																
2. Mixed team	.07	.25	-.32															
3. Non-family team	.27	.44	-.72	-.16														
4. Member exit	.04	.19	-.18	.01	.00													
5. Member entry	.04	.19	-.10	.09	.10	.16												
6. Number of members (team size)	2.30	.92	-.15	.43	.18	-.12	.27											
7. Two-person team	.69	.46	.52	-.37	-.11	-.19	-.12	-.47										
8. Having business plan	.71	.45	-.05	.03	.03	.02	.03	.05	-.07									
9. Preparing product/service	3.02	1.13	.04	-.01	-.05	.03	.04	.00	.01	.10								
10.Having financial projection	.49	.50	-.05	.04	.05	.00	.07	.14	-.10	.26	.25							
11. Business age	5.93	4.44	.00	-.01	.00	-.02	.04	.03	.00	.03	.05	.06						
12. Years of work experience	8.00	8.16	-.09	.01	.00	.08	.03	-.05	-.08	.09	.08	.09	.13					
13. Start-up experience	1.06	2.40	-.11	.03	.08	.04	.00	.05	-.12	.09	.07	.13	.07	.14				
14. Member age	43.5	11.4	.09	.02	-.15	.02	-.04	-.03	-.01	.03	.10	.08	.11	.36	.19			
15. Member age^2	2022	1036	.07	.01	-.14	.02	-.04	-.03	-.02	.03	.09	.08	.10	.36	.18	.99		
16. Female proportion	.39	.30	.32	-.03	-.24	-.07	-.06	-.03	.17	-.05	-.01	-.06	-.02	-.12	-.06	.07	.05	
17. Racial diversity	.12	.26	-.09	.08	.14	-.04	.05	.17	-.06	.05	.02	.04	.05	.01	.00	-.08	-.08	-.05

Table 3-2 shows the results from Cox regression models estimating the determinants of team turnover including both member exit and entry. By investigating team turnover that does not separate these two, we can identify which type of team becomes more stable. Model 1 only estimates control variables while Model 2 includes the main independent variables on a team's relational composition: family-only team, mixed team, and non-family team. Family-only teams are the reference category. As Model 2 demonstrates, compared to family-only teams, mixed teams shorten the time to change membership by about 76 percent ($ß = .566$, $p < .05$), while non-family teams affect the hazard rate by a factor of .703, which is equal to a 202 percent increase ($p < .01$). These results indicate that family-only teams are the least likely to experience membership change or are the most stable teams over time (H3-1 is supported).

Among control variables, teams composed of only two owners reduce the hazard of membership change by 45 percent ($ß = -.604$, $p <.001$) to 78 percent ($ß = -1.52$, $p <.001$) in comparison to larger start-up teams. Also, as presented in Model 2, team size increases the turnover hazard by 21 percent ($ß = .190$, $p <.001$); taken together, these results indicate that the larger the team, the faster it experiences membership change.

Furthermore, it is noteworthy that reaching to the milestone of preparing product or service significantly increases the membership change hazard by about 20 percent as both Models 1 and 2 exhibit. This may be attributed to the tendency that in nascent businesses that achieve important milestones to obtain profitability, the need for new skills or resources, such as developing new and strong relationships with external actors or identifying market niches, becomes more critical (Kim, Aldrich, and Ruef 2005) so that teams tend to change their membership more and faster.

About the demographic characteristics of a team, as Model 1 presents, teams with a higher proportion of female owners take longer to get to the point of membership change. However, the gender effect loses its statistical significance when teams' relational composition is included. Average of work experience of team members is statistically significant but does not increase the hazard of membership change enough (only 2 percent of hazard is increased).

Table 3-2. Coefficients for Cox Regression Models Predicting Team Turnover (Both Member Exit and Entry)

D.V: *Team Turnover (Both Member Exit and Entry)*	Model 1: Control Coef. (S.E.)	Model 2: Team Type Coef. (S.E.)
Mixed team [a]		.566* (.284)
Non-family team [a]		.703** (.244)
Number of members (team size)	-.059 (.077)	.190*** (.046)
Two-person team	-1.52*** (.145)	-.604*** (.201)
Having a business plan	.046 (.169)	.053 (.221)
Preparing product/service	.194*** (.058)	.180* (.071)
Having a financial projection	-.132 (.135)	-.057 (.177)
Years of work experience (average)	.022** (.007)	.022† (.012)
Start-up experience (average)	-.009 (.016)	-.018 (.027)
Business age	-.026 (.023)	-.029 (.027)
Average age of members	-.015 (.031)	-.020 (.038)
Average age of members (squared)	.000 (.000)	.000 (.000)
Female proportion	-.541* (.215)	-.448 (.327)
Racial diversity	.033 (.280)	.075 (.269)
PSED dummy	Included	Included
Region dummies	Included	Included
Sector dummies	Included	Included
Year dummies	Included	Included
N [b]	4,837	4,465

Cluster (Number of Team) [c]	971	967
Log pseudo-likelihood	-2067.40	-1458.75

[a] The reference category is "family-only team"

[b] N= the number of team-years (the unit of observation) [c] Cluster= the number of teams

Robust standard errors are adjusted for clustering by team ID, are in parentheses.

† p < .10 * p <.05 ** p <.01 *** p <.001

The results from Cox regression models to test the main effect hypotheses are presented in Table 3-3 (member exit; H3-2 and H3-3a) and Table 3-4 (member entry; H3-3b). First, in Table 3-3 presenting the coefficients of determinants predicting member exit, Model 2 shows the effects of the main independent variables: family-only team (the reference category), mixed team, and non-family team, on the withdrawal of an existing member over time. As expected, mixed teams significantly increase the hazard of founder departure by 177 percent (ß = 1.02, p < .05), compared to family-only teams. Similarly, non-family teams also shorten the time to member exit by 150 percent (ß = 0.919, p < .05). These results provide the support for H3-2 and H3-3a. Compared to owners of family-only teams having the highest level of cohesion, entrepreneurs of mixed teams and non-family teams are more likely to leave the team.

Two-person teams decrease the hazard of member exit by 76 to 86 percent relative to larger teams. Consistently, bigger teams are more likely and more quickly to experience the withdrawal of an existing owner. This tendency indicates that owners in smaller teams, especially entrepreneurial pairs, may perceive the psychic cost of exit higher than large teams. Meanwhile large teams may have more intra-team disturbance which increases the likelihood of member withdrawal (Shrivastava and Rao 2014).

Also, a 1 percent rise in the proportion of female founders in a team lowers its hazard of member exit by 31 to 57 percent. The milestone of preparing product or service increases the member exit hazard but its effect loses statistical significance when including a team's relational composition.

Table 3-3. Coefficients for Cox Regression Models Predicting Member Exit

D.V: *Member Exit*	Model 1: Control Coef. (S.E.)	Model 2: Team Type Coef. (S.E.)
Mixed team [a]		1.02* (.501)
Non-family team [a]		.919* (.384)
Number of members (team size)	.796*** (.102)	.773* (.328)
Two-person team	-1.97*** (.197)	-1.43*** (.442)
Having a business plan	-.036 (.197)	.043 (.339)
Preparing product/service	.166* (.076)	.145 (.116)
Having a financial projection	-.050 (.163)	.054 (.290)
Years of work experience (average)	.017 (.010)	.026 (.018)
Start-up experience (average)	.006 (.016)	.000 (.023)
Business age	-.113 (.069)	-.210* (.087)
Average age of members	.036 (.040)	.054 (.076)
Average age of members (squared)	.000 (.000)	-.001 (.001)
Female proportion	-.376† (.203)	-.849† (.447)
Racial diversity	.024 (.452)	-.161 (.453)
PSED dummy	Included	Included
Region dummies	Included	Included
Sector dummies	Included	Included
Year dummies	Included	Included
N [b]	4,837	4,465
Cluster (Number of Team) [c]	971	967
Log pseudo-likelihood	-1098.70	-565.78

[a] The reference category is "family-only team"

[b] N= the number of team-years (the unit of observation) [c] Cluster= the number of teams
Robust standard errors are adjusted for clustering by team ID, are in parentheses.
† p < .10 * p <.05 ** p <.01 *** p <.001

Table 3-4 displays the results for Cox regression models to test the hypotheses relating to member entry. Like other analyses, Model 1 includes only control variables while Model 2 estimates the main independent variables. As shown in Model 2, there is no significant association between mixed teams and the hazard of member entry; this results indicates that mixed teams also hardly add a new member compared to family-only teams having the lowest hazard of new member entry. However, as expected, non-family teams significantly shorten the time to add a new member by 88 percent (ß = .631, p < .05) compared to family-only teams. This results supports for H3-3b. Raw number of team members also increases the hazard of new member addition while teams composed of only two members decrease the hazard of member entry. The proportion of female founders in a team has no significant association with new member entry in new member entry while it affects the exit hazard of member exit.

Table 3-4. Coefficients for Cox Regression Models Predicting Member Entry

D.V: Member Entry	Model 1: Control Coef. (S.E.)	Model 2: Team Type Coef. (S.E.)
Mixed team [a]		.422 (.293)
Non-family team [a]		.631* (.266)
Number of members (team size)	.351*** (.044)	.275*** (.050)
Two-person team	-.495* (.203)	-.633** (.233)
Having a business plan	-.034 (.230)	-.013 (.238)

Preparing product/service	.138† (.081)	.166* (.082)
Having a financial projection	.210 (.202)	.151 (.209)
Years of work experience (average)	.028* (.013)	.029* (.013)
Start-up experience (average)	-.027 (.034)	-.037 (.037)
Business age	-.014 (.025)	-.009 (.025)
Average age of members	.011 (.048)	-.012 (.045)
Average age of members (squared)	-.001 (.001)	.000 (.000)
Female proportion	-.488 (.340)	-.241 (.374)
Racial diversity	.246 (.294)	.054 (.301)
PSED dummy	Included	Included
Region dummies	Included	Included
Sector dummies	Included	Included
Year dummies	Included	Included
N [b]	4,837	4,465
Cluster (Number of Team) [c]	971	967
Log pseudo-likelihood	-1090.23	-1068.02

[a] The reference category is "family-only team"

[b] N= the number of team-years (the unit of observation) [c] Cluster= the number of teams

Robust standard errors are adjusted for clustering by team ID, are in parentheses.

† p < .10 * p <.05 ** p <.01 *** p <.001

3-5. Conclusion and Discussion

The relational composition of start-up teams has been limited and ignored in previous studies. However, considering the fact that the formation of venture teams is fundamentally constrained by founders' prior social ties, relational composition is an important dimension in entrepreneurship research. In this regard, this study explicitly focuses on the role of relational composition in the dynamics of team development. I

specifically, examine whether and how an entrepreneurial team's initial combination of social relationships among owners has an impact on its membership change over time. The novel contribution of this research is the introduction of a typology based on a venture team's relational composition by focusing on the distinction between family and non-family: namely family-only teams, mixed teams, and non-family teams. Furthermore, this study contributes to the literature by exploring the role of these team-types in member exit as well as member entry. With a conceptual framework that emphasizes the importance of team cohesion and faultlines in nascent entrepreneurial teams, this study develops and tests the hypotheses relating to the role of relational composition in member departure and addition through a longitudinal dataset of nascent entrepreneurial teams in the U.S. Cox regression models are used to identify how independent variables and controls are associated with member exit and entry.

To summarize the results, H3-1, H3-2, H3-3a and H3-3b are supported. First, family-only teams are the least likely to change membership (H3-1). Family-only teams have stronger cohesiveness than the other two team types. Also, this type of team tends to be group-oriented. Members of family-only teams are bound by loyalty and trust to each other so that their decision tend to be influenced by other owners who are their family members. The higher level of cohesion, based on the same familial background and interactions in family-only teams, hinders the departure of an existing owner as well as the addition of new members.

Second, supporting H3-2, mixed teams are more likely to experience member exits than family-only teams. Since mixed teams are composed of two different subgroups, family and non-family, salient faultlines between subgroups may easily emerge within a team.

These faultlines weaken team cohesion and further develop into emotional conflict (Amason and Sapienza 1997). This relationship-related dysfunctional conflict exacerbates team members' discontent and leads to their withdrawal from the team. Also, the unstable atmosphere of these teams impedes new member addition. The lower level of team cohesion or the higher level of conflict in mixed teams significantly influences member exit and also provoke a similar lower level of member entry to family-only teams.

Third, non-family teams also increase both the hazard of member exit (H3-3a) and that of member entry (H3-3b) in comparison to family-only teams; we can infer that non-family teams are the most flexible type of relational composition with regard to membership change. These teams may be more goal-oriented while family-only teams are rather relationship-oriented. Also they are more individualistic than family teams. Although these teams have high a high level of cohesion like family teams, members may be less constrained by other team members and feel less burdened when making a decision to leave.

Among the controls, three variables are noteworthy. First, teams that reach the milestone of preparing a product or service are significantly more likely to experience both member exit and entry. For nascent venture teams, this milestone is a substantive stage beyond idea generation to reach profitability. In preparation of a product or service, teams may need new skills, technologies, responsibilities, and resources. For instance, teams develop new trusting relationships with external actors such as suppliers, customers, and investors. Also it becomes more critical to identify market niches (Kim, Aldrich, and Ruef 2005) so that teams tend to change their membership more and faster.

Second, the gender composition of a start-up team significantly increases the hazard of member exit but has no effect on member entry. Teams with a higher proportion of

female owners are more likely and more quickly to experience the withdrawal of an existing member. The gender effect on turnover has shown inconsistent findings. For example, Heavey et al. (2013) find that the proportion of women employees is positively associated with organizational turnover because job embeddedness is lower and family obligations are higher for females. In contrast, Elvira and Cohen (2001) find that the proportion of females (at the same job level) is negatively related to turnover for women employees, while the proportion of males does not affect male employee turnover. Tolbert et al. (1995) find that women faculty members tend to leave an academic department as the proportion of women grows, since the increase of a minority group will result in intergroup competition and conflict. However, they also find that this effect decreases as women achieve about 40 percent representation, and a higher proportion of females among tenured faculty decreases turnover. All of these are studied in traditional workgroups, but they provide few insights so as to interpret the findings of this study on entrepreneurial teams. First, males are less influenced by the gender effect. Second, these findings show that the female proportion decreases the turnover rate of women, as competition decreases. Unlike conventional workgroups, venture teams hardly have any hierarchy; thus, the female proportion decreases the likelihood of women owners' exit. Overall, the female proportion of an entrepreneurial team is negatively associated with the withdrawal of an existing owner.

Finally, team size has a positive effect on both member exit and entry; also two-person teams significantly decrease the hazard of membership change. Prior research also supports that team size has a positive effect on member exit (Ucbasaran et al. 2003; Chandler et al. 2005). Increased size prohibits social integration, smooth communication and collaboration among team members (Chandler et al. 2005). Amason and Sapienza (1997)

find that larger teams tend to produce high levels of affective conflict that can impede group cohesion; this leads to a higher level of member exit. Small teams, especially entrepreneurial pairs, are likely to be closely knitted than larger teams; members of these teams may consider more seriously the economic and psychological costs related to the decision to leave a team (Francis and Sandberg 2000; Ucbasaran et al. 2003). However, the findings in this study on member addition provide contradictory evidence to prior research; Ucbasaran et al. (2003) find that the size of new venture teams is negatively associated with member entry since small start-up teams with limited resource pools are more likely to seek and recruit new team members to cover new and broader resources. Contrary to this logic, our findings demonstate that new member entry tends to occur in larger teams. Small teams have limited resources or skills, but are likely to be more closely bonded with each other than larger teams. Thus, entrepreneurial pairs may be highly particular about new member addition because incumbents may be concerned about interpersonal chemistry with a new member.

This research sheds light on the membership change of entrepreneurial teams that has received less attention in the literature. In venture teams, the withdrawal and/or the addition of members often occur so that membership is not static but instead dynamic over time. And most notably, this study finds that this membership change is influenced by the relational composition of a team; different social relationships among team members develop different organizational cultures that can determine the level of team cohesion and conflict. These results suggest that the membership change in a venture team is determined by the team's interpersonal processes as well as by strategic decisions.

Specifically, this study goes beyond the traditional distinction of family versus non-

family teams; it brings mixed teams composed of family and non-family members into focus as an independent category. Unlike family-only teams with the highest cohesion and group-oriented cultures, mixed teams are likely to be the least cohesive; salient faultlines between family and non-family subgroups breed emotional conflict in a team. This conflict can influence the decision of founders to leave the team. Also while the flexible and individual cultures of non-family teams allow frequent member entry, mixed teams' disharmony hinders the addition of new members. Prior research has paid attention to the unique traits of family affiliation in venture teams versus non-family members, or the distinctive characteristics of family teams compared to non-family teams; for instance, family affiliation in a business behaves like a steward, and family teams are bound by a sense of kinship and reciprocal altruism. However, this line of research ignores the important and distinctive type of start-up teams namely mixed teams. This study contributes to the literature by exploring this unique type of team.

However, this research has a few limitations. First, the majority of family-only teams are composed of two owners. I am aware of potential the methodological problem caused by this imbalanced distribution of team size. Accordingly, I analyze the sub-sample of three or more member teams for a robustness check in the Appendix. However, as noted in previous research using the PSED, the majority of teams involved in it are two or three-member groups (Ruef, Aldrich and Carter 2003) so that the total sample number dramatically decreases. Therefore, I may face the possibility of not obtaining statistical power. Second, the panel nature of the PSED reveals that responses become less extensive over time than first appears. This reduced information may be caused by increased attrition rates. Although this panel dimension does not mean that longitudinal analysis cannot be performed (Parker

and Belghitar 2006), it may limit data analysis. Third, the left-truncation issue may lead to the potential biased results. Left truncation occurs when the businesses have already been exposed to the risk of membership change before the survey. Although left-truncation in PSED II is relatively less severe since it surveys nascent entrepreneurs and their pre-profit businesses (Yang and Aldrich 2016), I recognize the potential for bias from the nature of this kind of data and method.

Additional research is needed on a few issues. First, studies need to explore the detailed processes that lead to turnover. For instance, does a certain relational composition breed or hinder the development of different types of conflict (take-related conflict or relationship-related conflict)? Whether and how do different types of conflict impact membership change? Second, studies examining how team members consider and recognize relational diversity are needed. For instance, how do family members of mixed teams feel the faultlines between family and non-family members, and is it different from that of non-family members? How do members of non-family teams recognize their relationship-based diversity? Third, studies need to explore the differing targets for member departure and addition. For example, which types of members are dropped or added to a team? Are these tendencies different across the team's relational composition? Finally, future studies need to explore how membership change influences later entrepreneurial outcomes. Research considering team turnover as input can facilitate our understanding of how member entry and exit of a venture team shape performance and whether performance is differently influenced by the interaction between a team's relational composition and team turnover. The following chapter tackles this final research question.

APPENDIX

Membership change can create the possibility of changing team type. Table 3-A illustrates the descriptive summary of this transition. The majority of venture teams in all types do not experience team type change. Among teams changing type, it is noteworthy that five mixed teams are changed into family-only teams while only one mixed team changes into a non-family one. Although these are a small number, this indicates that non-family members tend to leave teams compared to family members; in mixed teams, non-family members may be more dissatisfied with the team and/or consider less risk involved in making the decision to leave.

Table 3-A. Transition of Team Type (Frequency)

Team Type		**To**			
		Family-Only Team	Mixed Team	Non-Family Team	Solo
From	Family-Only Team	569	3	1	41
	Mixed Team	5	65	1	1
	Non-Family Team	2	5	252	47
	Solo	28	4	36	…

Note: This transition is tracked over 4wavees for PSED I and 6 waves for PSED II so that one team can experience the change of its team type multiple times.

Table 3-B shows the results of sub-sample analyses that predict membership change of venture teams. While the main models in the manuscript analyze a full sample of two or more owners, these models analyze three or more member teams. These analyses may

control for the higher stability of triads (or larger groups) than dyads (Rubinstein and Timmins 1978; Simmel 1950). As shown in Table 3-B, although the coefficients of mixed teams and non-family teams are positive compared to family-only teams, these two effects are not statistically significant. It is because the total N decreases from 972 (the full sample) to 244. In particular, the number of family-only teams decreases from 610 to 63; that of non-family teams decreases from 293 to 112; and the number of mixed teams is 69. These are significant changes in sample size and sample composition. Subgroup analyses can lead to errors because of less statistical power to detect differences, caused by a small sample size; this can create a false-negative error. Thus, in order to determine whether the main findings disappear in larger size teams, I perform an analysis of variance (ANOVA) using the subsample of three or more owner teams and compare the means of member exit and entry by the team types. The results are shown in Table 3-C.

Table 3-B. Coefficients for Cox Regression Models Predicting Member Exit and Entry (sub-sample: three or more member teams)

	Model 1 *Member Exit* Coef. (S.E.)	Model 2 *Member Entry* Coef. (S.E.)
Mixed team [a]	.267 (.292)	.075 (.209)
Non-family team [a]	.197 (.358)	.001 (.116)
N. of total owners (Team size)	.252 (.349)	.177*** (.047)
Having a business plan	-.714 (.475)	-.114 (.330)
Preparing product/service	.20 (.183)	.281* (.113)
Having a financial projection	.895 (.510)	.265 (.300)
Years of work experience	.072* (.030)	.025 (.016)
Start-up experience	-.186 (.122)	-.077 (.055)
Business age	-.121 (.089)	.002 (.023)

Member age	.040 (.137)	-.032 (.054)
Member age^2	-.001 (.001)	.000 (.001)
Female proportion	-1.392† (.734)	-.559 (.409)
Racial diversity	.067(.673)	.473 (.375)
PSED dummy	Included	Included
Region dummies	Included	Included
Sector dummies	Included	Included
Year dummies	Included	Included
N [b]	1,104	1,104
Cluster (Number of Team) [c]	244	244
Log pseudo-likelihood	-182.91	-520.08

Note: [a] The reference category is "family-only team"

[b] N= the number of team-years (the unit of observation) [c] Cluster= the number of teams

Robust standard errors are adjusted for clustering by team ID, are in parentheses.

† p < .10 * p <.05 ** p <.01 *** p <.001

Table 3-C shows the results of one-way ANOVA for membership change. These analyses allow me to determine if there are significant differences in member exit and entry among the three types of venture founder teams. First, ANOVA in comparing the mean of teams in each type for member exit is statistically significant. The Tukey–Kramer post-hoc test reveals that the means for both mixed teams and non-family teams are significantly higher than for family-only teams. Next, ANOVA, with member entry as the dependent variable, is also significant; a post-hoc comparison indicates that the mean for non-family teams is significantly higher than for family-only and non-family teams. These results demonstrate that the patterns of membership change are significantly different across the team types, even in the subset of larger teams as well as in two-person teams.

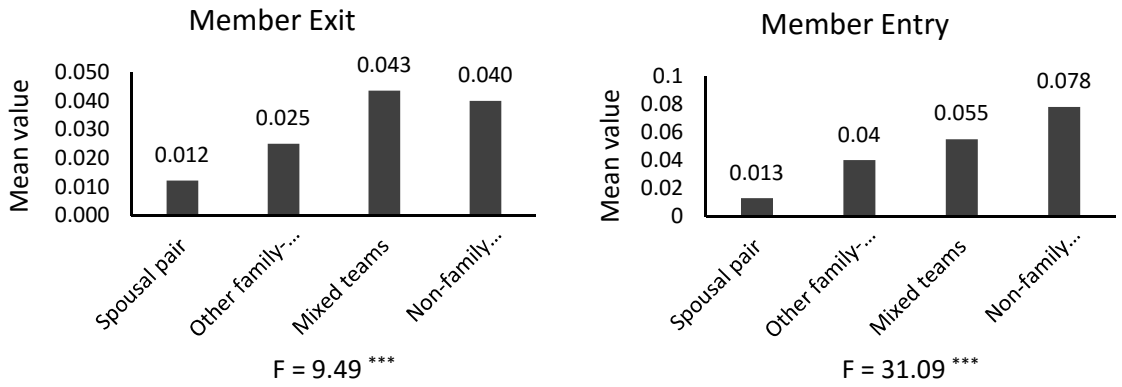
Table 3-C. Analysis of Variance Results for Member Exit and Entry by the Team Type (sub-sample: three or more member teams)

	Member Exit			*Member Entry*		
	Mean (S.D.)	Freq[a]	F	Mean (S.D.)	Freq	F test
Family-only teams	.019 (.105)	276		.062 (.246)	276	
Mixed teams	.044 (.204)	299	2.36†	.078 (.301)	299	2.58†
Non-family teams	.039 (.175)	431		.110 (.212)	431	
Post-hoc Test (Pairwise Comparison of Means)	Contrast (S.E.)			Contrast (S.E.)		
Mixed teams vs. Family-only teams	.025† (.014)			.016 (.023)		
Non-family teams vs. Family-only teams	.020† (.012)			.048** (.017)		
Non-family teams vs. Mixed teams	-.005 (.014)			.032† (.019)		

Note: [a] Frequency is larger than the actual number of start-up teams because teams are counted repeatedly over survey waves.
† p < .10 * p <.05 ** p <.01 *** p <.001

Furthermore, in the dataset, 76 percent of family-only teams are spousal pairs. Thus, I distinguish spousal pairs, two-person teams composed of husband and wife, as a separate category from family-only teams and perform another ANOVA. These analyses allow me to identify whether the findings related to family-only teams are only driven by spousal pairs, and also whether the differences disappear for other family teams. Figure 3-A shows the mean comparisons of member exit and entry by four types of entrepreneurial founder teams: spousal pairs, other family-only teams, mixed teams, and non-family teams.

Figure 3-A. Mean Number of Member Exit and Entry by Team Type
(spousal pairs as a separate category)



Note: In wave1, # of spousal pairs =472; # of other family-only teams=151; # of mixed teams=71; # of non-family teams=293

† p < .10 * p <.05 ** p <.01 *** p <.001

As this figure illustrates, the two types of family-only teams experience fewer member exit and entry than mixed teams and non-family teams; these two one-way ANOVA are statistically significant. Even though spousal pairs show a higher level of conservativism than other family-only teams, non-spousal family teams are also less likely to have membership change than mixed teams and non-family teams. The Tukey-Kramer post-hoc test of the ANOVA on member exit also shows that the mean contrast between spousal pairs and other family-only teams is not statistically significant; about member exit, spousal pairs and other family-only teams are not different. Meanwhile, the post-hoc comparison on member entry reveals that the mean for non-spousal family-only teams is significantly higher than for spousal pairs; two-person teams composed of a couple are the most reluctant to add a new member. However, compared to mixed teams and non-family teams, non-spousal family-only teams still display a more stable pattern of membership change.

CHAPTER 4.

LIFE AND DEATH OF NASCENT ENTREPRENEURIAL TEAMS: THE IMPACT OF RELATIONAL COMPOSITION ON VENTURE OUTCOMES

4.1 Introduction

The successful creation and management of new ventures are often driven by team effort (Kamm, Shuman, Seeger, and Nurick 1990; Ensley, Pearson, and Amason 2002; Ruef 2010). As multiple individuals collaborate in a team, a founding team – as opposed to a sole founder – requires the coordination of the diverse human and social capital of team members. Herein, founding teams encounter a dilemmatic situation. On the one hand, founding teams can benefit from their team members with a diverse set of skills and knowledge in producing superior outcomes. On the other hand, however, they tend to face coordination problems especially since disagreement or conflict among team members can lead to poor performance.

While previous studies on entrepreneurial teams have mainly focused on the importance of merit-based team structure (Beckman, Burton, and O'Reilly 2007; Leary and DeVaughn 2009) and the demographic characteristics of teams (Chowdhury 2005), what is largely overlooked is the influence on venture performance of team composition based on the social relationships between team members. Unlike existing work teams, the membership composition of entrepreneurial teams is inhibited by prior social ties. Thus, we can easily find start-up firms founded by family, friends, classmates, and/or prior co-workers (Ruef, Aldrich, and Carter 2003).

This relational component of an entrepreneurial team may influence the styles of communication, cooperation, and decision-making among group members since each social relationship has a distinctive relationship quality and history. The different composition of social relationships in a team brings a different level of trust and cohesiveness among team members. Thus, it may work as a founding structure to determine the team's later behaviors and outcomes. In this paper, I go beyond the prior functional and demographic explanations and illuminate whether and how this relational aspect of an entrepreneurial team affects its venture outcomes.

In Chapter 4, relational composition is operationalized as the team typology introduced in Chapter 3: family-only teams, mixed teams, and non-family teams. As mentioned in the previous chapter, family-only teams are comprised of family members exclusively, while non-family teams are composed of only non-family members. Mixed teams are a blend of the two types of social ties. Furthermore, this paper considers the possibility that membership change may moderate the relationship between the relational composition of an entrepreneurial team and its venture performance. As discovered in Chapter 3, membership change is contingent on the relational composition of a team, and further it may have an impact on team performance since membership exit and/or entry are directly related to the ways of social interactions among members as well as their changes over time.

Using nationally representative samples of nascent entrepreneurial teams in the United States, this paper investigates the role of relational composition on two different outcomes of nascent entrepreneurial teams. One is a positive performance indicator, venture emergence, and the other is a negative entrepreneurial outcome, team disbanding. To study

nascent teams allows us to overcome the success bias that results from focusing on established start-ups that have already overcome a successful nascent period. Also, given that characteristics in the founding period continue to influence an organization's later behavioral patterns and outcomes (Stinchcombe 1965), studying the very early stage of an entrepreneurial team is important in entrepreneurship research. With the application of competing risk event history models, I examine which type of nascent teams accomplish operating status faster, or drop out, in a longitudinal framework.

4-2. Theoretical Background and Hypotheses Development

Scholars have recognized that the creation of new ventures is commonly accomplished by teams rather than by a lone genius founder (Aldrich et al. 2002; Cooper, Woo, and Dunkelberg 1989 Kamm et al. 1990; Ruef, Aldrich and Carter 2003). Existing research has shown that team-created new businesses tend to achieve higher corporate success (Birley and Stockley 2000; Cooper and Bruno, 1977; Eisenhardt and Schoonhoven, 1990). The superior performance of team-created ventures is driven by the larger amount of human and social capital brought by multiple team members that facilitate handling uncertainties and difficulties associated with venture creation (Chowdhury 2005; Lechler 2001; West 2007).

Accordingly, venture outcomes are influenced by founding team characteristics and compositions (Amason et al. 2006; Beckman, Burton, O'Reilly 2007; Chandler et al. 2005; Chowdhury 2005; Eisenhardt and Schoonhovcn 1990; Roure and Maidique 1986; Watson, Kumar, and Michaelsen 1993). Prior studies draw on two different schools of thought on team characteristics: human capital theories and organizational demography. Human capital

scholars shed light on the team member skills and knowledge necessary for new businesses, such as the type and amount of previous experience (Cooper et al. 1994; Gimeno et al. 1997; Schefczyk and Gerpott 2000; Burton et al. 2002; Baum and Silverman 2004), while demographic arguments emphasize the role of team composition and diversity in firm outcomes (Beckman et al. 2007; Beckman and Burton 2011).

Although these studies have effectively shown how the merit- and demography-based composition of teams affects venture performance, another important aspect of ownership structure has been ignored in the literature: relational composition. Relational composition refers to the configuration of social relationships among members in a team (Aldrich, Carter, and Ruef 2002). Since the process of membership composition is generally voluntary and autonomous in entrepreneurial teams (Ruef, Aldrich, and Carter 2003; Yang and Aldrich 2014), they are likely to be composed of preexisting social ties such as family, friends, or previous co-workers.

The arrangement of social relationships between team members may have continuing and significant effects on the enterprise because relational structure tends to be associated with the ways in which a team coordinates and integrates multiple members' capabilities to make decisions for venture creation. Also the relational structure of entrepreneurial teams may be related to venture performance via the extent of team cohesiveness and conflict. In spite of its possible importance, the role of relational composition is relatively ignored in the entrepreneurship literature. This paper attempts to fill this gap by examining whether and how relational composition is associated with venture outcomes. Furthermore, this paper examines the role of membership change as a moderator between relational composition and the venture outcomes of nascent entrepreneurial teams. Member exit and entry are important

dimensions to detect changes in social interactions within a team over time, and more importantly, have a significant impact on entrepreneurial performance (Chandler, Honig, and Wiklund 2005; Kim, Aldrich, and Ruef 2005).

As indicators of entrepreneurial performance, this paper considers both positive and negative outcomes. First, as positive performance, I examine how the relational composition of a nascent team affects the rate of becoming an operating entity. Second, team disbanding is examined as a negative outcome. The antecedents which improve venture success may not necessarily be the same as those which decrease venture failure, so that studying both outcomes allows us to understand the full picture of venture performance. In the following section, I draw on extant research on teams and family businesses and develop the logic and hypotheses.

Relational Composition: Family-only teams, Mixed teams, and Non-family teams

In start-up teams, membership composition is constrained by the preexisting social ties of owners; people work in partnership with their spouse, kin, friends, and prior business associates in order to found new businesses. However, relational composition has not received sufficient attention from entrepreneurship literature. Only a small number of papers examine entrepreneurial teams with family affiliations, those that represent the strongest and most enduring social relationship (Discua Cruz, Howorth, and Hamilton 2013; Discua Cruz, Hadjielias, and Howorth 2017; Howorth, Jackson, and Discua Cruz 2014).

These studies focus on the distinctive characteristics of family members in the business relative to non-family member, or family teams versus non-family teams. For instance, family members' strong emotional attachment to the firm produces a competitive

advantage since they integrate the family and business life effectively (Ensley and Pearson,2005; Habbershon and Williams 1999). Also, Miller et al. (2008) find that small family firms survive longer than non-family ones due to stewardship and a long-term view of their businesses. Although these studies successfully capture the role of family in the field of business, this distinction can lead to a limited understanding of the relational composition of venture teams. Specifically, some start-up teams are composed of both family and non-family members; this co-existence of two different subgroups in one team may reveal different team processes and outcomes from those in teams composed of family members only or non-family members. In this regard, this study separates mixed teams from other two types of teams by introducing a new typology of venture teams based on social relationships among founders: family-only teams, mixed teams, and non-family teams. The typology and characteristics of team types is displayed in Figure 3-1.

Family-only teams are exclusively composed of family members and tend to have the highest level of cohesion. Family members have a long history of every-day experience with one another and thus, they share the same norms and values (Craig et al. 2009; Webb, Ketchen, and Ireland 2010). Meanwhile, mixed teams are comprised of both family and non-family members. Since two different subgroups coexist within one team, salient faultlines and a high level of conflict are likely to emerge. Lastly, non-family teams are composed of founders who are non-work-related friends or work-related acquaintances. Although it is possible for non-family members to have a high level of trust in each other, their background, norms, and values are likely to be heterogeneous. Also, their cultures may be more instrumentally oriented than human/group-oriented.

In sum, the relational composition is closely associated with team work, especially

with team cohesion, conflict, and culture. This social aspect of team work can be expected to influence venture performance. At the individual level, it influences the attitudes and motivation of members. Also, at the team level, it affects the interaction and communication among members for collaboration. In the next section, I will illustrate these mechanisms in detail and derive hypotheses on the relationship between the team type and venture performance.

Family Ties, Team Cohesiveness, and Firm Creation

Family is a primordial institution that individuals experience from birth to death; it often creates among members the strongest trust and bonds, as well as shared values and obligations compared to any other social institutions (Coleman 1990). Long-term relationships with family members can foster and deepen interpersonal trust (Pearson, Carr, and Shaw 2008; Pollak 1985) which in turn promotes high levels of personal commitment (Sirmon and Hitt 2003).

Family business scholars have found this advantageous aspect of family in the business context. Family members tend to behave as *stewards* and avoid self-serving behaviors for their businesses. Family owners often have a deep emotional investment in their businesses (Bubolz 2001) and strongly identify themselves with their firms (Davis, Schoorman, and Donaldson 1997). They perceive firm performance as their family's fortune and their own well-being (Sciascia and Mazzola 2008).

This altruism that emanates from familial bonds may lead to the effectiveness of interactions among team members (Meglino and Ravlin 1998). For instance, the higher level of trust in family-owned firms allows for a more effective information exchange among

members than exists in non-family firms (Tagiuri and Davis 1996). Trust-based communication emanating from bonding social capital facilitates cooperation among team members (Adler and Kwon 2002). Also, family members may have frequent opportunities to discuss ideas for creating a new business. The business ideas and plans shared among family members are consistent and cumulative for action (Ruef et al. 2003). Moreover, family members tend to bring with them significant financial and physical resources, known as *survivability capital* (Sirmon and Hitt 2003), which can be used to sustain firms during difficult times (Dyer 2006).

Considering the findings above, that family ties are advantageous to create and manage businesses, then which type of team governance will have a superior performance in nascent entrepreneurial teams? Unlike with solo founder, an entrepreneurial team needs to coordinate the roles and tasks of multiple individuals. Every founder has his/her own task activities that tend to be interrelated with and interdependent on other founder's tasks. Also, every founder has his/her own voice when a team makes a decision. Therefore, a team should carefully manage the interdependencies among team members and make them highly integrated in order to achieve goals. It is consistent with the findings of previous literature that cohesive teams tend to have a better performance in new ventures (Ensley et al. 2002; Smith et al. 1994). Research suggests that members of cohesive groups work harder and longer when they face group problems (Berkowitz 1954; Shaw and Shaw 1962). And this higher member commitment becomes a critical factor of success (Druskat and Pescosolido 2002).

In this sense, I argue that family-only teams may be the most cohesive because all team members share the same family background. Founding team members who are family

members may have greater trust for one another than in other relationships, and trust is an important mechanism of business performance. Family-only teams with a higher level of social integration may be expected to perform better since team members work as a group rather than a simple sum of individuals. Also, such strong and bonding relationships may allow the team both direct communications and a clear sense of appropriate actions for firm creation. Efficient and effective interactions between team members become a competency to aid the team in achieving its business milestones. Based on these arguments, I suggest the following hypotheses:

H4-1a. Family-only teams have a greater probability to create a new firm more quickly than mixed teams and non-family teams.

H4-1b. Family-only teams have a lower probability to disband more quickly than mixed teams and non-family teams.

Faultlines Between Family and Non-family, and Team Disbanding

As mentioned above, family members in family entrepreneurial teams have shared norms and trust that determine strong membership (Discua Cruz et al. 2013). This strong identity with the family can lead to a favoritism for family members to the exclusion of non-family members (Pearson, Carr, and Shaw 2008). Such nepotism for family in founding teams may hinder social integration and cohesion in the teams in which family members and non-family members coexist.

Previous research in group dynamics has examined the effect of *divides* and *schisms* that can occur when different subgroups comprise one work group (Lau and Murninghan

1998). These *faultlines* represent how dissimilarities among team members' demographic and/or cognitive attributes develop *fractures* within the team. Group members' strong social identification with certain social categories has an impact on the social integration of the group (O'Reilly, Caldwell, and Barnett 1989), and can provoke conflicts between subgroups that hinder group functioning (Lau and Murninghan 1998).

In the case of mixed teams, the most evident divide may be whether a team member belongs to the family or not. Family members share common and inherited norms, values and culture and have a strong emotional attachment to the family and the business they are affiliated with (Sharma and Irving 2005). However, non-family members tend to have a common feeling of exclusion from the family (Minichilli, Corbetta, and MacMillan 2010). The emergence of faultlines promotes disagreements and tensions in interactions between family and non-family members. And these interpersonal incompatibilities can lead to behavioral disruptions that impede team performance (Li and Hambrick 2005). Based on this logic, I hypothesize the following hypothesis:

H4-2a. Mixed teams have a lower probability to create new firms more quickly than family-only teams and non-family teams.

H4-2b. Mixed teams have a greater probability to disband more quickly than family-only teams and non-family teams.

Coordination and Membership Change

Previous empirical research on membership change/team turnover as an input (independent variable) focused on its effect on group performance such as productivity,

efficiency, or knowledge transfer (Arrow and McGrath 1993; Kane, Argote, and Levine 2005; Virany, Tushman, and Romanelli 1992). Specifically, these studies consider how membership change in a group influences group processes and how these lead to performance outcomes. For instance, this approach has acknowledged that team turnover changes norms and routines, alters communication among members, and brings new ideas and skills that can influence team effectiveness.

Therefore, in other words, membership change is a team process related to the coordination of intra-team collaboration and disagreements in new ventures (Chandler, Honig, and Wiklund 2005). Thus, research has found that team cohesion and faultlines are closely associated with membership change or turnover (Jackson et al. 1991; Krackhardt and Porter 1986; O'Reilly et al. 1989; Holtom et al. 2008). For instance, Piper et al. (1983) find that group cohesion is positively associated with the commitment to remain in the group, while Cunningham and Sagas (2004) argue that value-based dissimilarity lowers job satisfaction and increases turnover intentions. Considering the finding that coordination is central to team functioning and performance (Brannick, Roach and Salas 1993; Guastello and Guastello 1998; Kozlowski, Gully, Nason and Smith 1999; Kozlowski and Bell 2003), membership change may moderate the relationship between a team's relational structure and business outcomes.

From a human capital perspective, departing members may take tacit and explicit knowledge and capital away from the team, while adding members can bring new and valuable knowledge to the team (Busenitz, Fiet, and Moesel 2004; Beckman et al. 2007). However, at the same time, membership change in the team requires substantial *socialization* (Chandler et al. 2005), and thus, involves change in team coordination.

Therefore, its impact on venture outcomes can vary across the degree of cohesion and faultlines in the team.

In a socially integrated team – family-only teams, the addition of a new member may be positively associated with venture performance because higher trust among team members facilitates faster and easier adaptation and socialization to cope with the possible disruption caused by adding a member, so that the team can exploit the benefits from human, financial and social capital brought by a new member. However, in a team with faultlines – mixed teams, adding a member can be more disruptive than beneficial because the team already tends to have a disagreement between its members. New viewpoints and ideas imported by a new member may increase the level of affective conflict (Amason and Sapienza 1997) so that a coordination problem can grow after such an addition. Thus, these teams require more time and money to coordinate a functional collaboration and interpersonal interaction than do cohesive teams. As a result, membership addition is very disruptive and is expected to be dysfunctional.

H4-3a. Member entry will enhance the positive association between family-only teams and new venture creation.

H4-3b. Member entry will enhance the negative association between family-only teams and team disbanding.

H4-3c. Member entry will enhance the negative association between mixed teams and new venture creation.

H4-3d. Member entry will enhance the positive association between mixed teams and team disbanding.

With regard to the exit of an existing member, it may harm team performance because s/he may withdraw valuable knowledge and skills from the teams in general. Especially in family-only teams, the routine and role expectations of working and interacting are more stable and strongly settled than other types of teams because all members share both family and business spheres. Thus, the departure of existing members tends to disrupt these work processes of the teams. On the other hand, in mixed teams, team withdrawal may be beneficial to their outcomes since decrease in team size can reduce their coordination cost. Also, possible uncertainty around work processes cause by the lower level of trust and familiarity with one another can be decreased by member dismissal. From these argument, the following hypotheses can be derived.

H4-4a. Member exit will attenuate the positive association between family-only teams and new venture creation.

H4-4b. Member exit will attenuate the negative association between family-only teams and team disbanding.

H4-4c. Member exit will attenuate the negative association between mixed teams and new venture creation.

H4-4d. Member exit will attenuate the positive association between mixed teams and team disbanding.

4-3. DATA, VARIABLES & METHOD

Data

As in Chapter 3, I use the merged dataset of PSED I and PSED II only composed of entrepreneurial teams formed by multiple owners. PSED I and PSED II are nationally representative samples of the U.S. nascent entrepreneurs who have actively engaged in the creation of new business, but who have not yet achieved a viable firm birth (Reynolds 2000). Nascent businesses in this dataset refer to the businesses which have not achieved profitability yet. Thus, this dataset allows me to identify how long it takes a business to achieve initial sales and whether that business discontinues its entrepreneurial activities. A detailed explanation of this data is displayed in Chapter 3.

Dependent Variables

As mentioned above, the dependent variables used in this study are of two types. One is *venture emergence* as a successful outcome, and the other is venture failure as a negative outcome. First, venture emergence measures team success by achievement of first sales. This is a representative performance measure of nascent entrepreneurs (Brannon, Wiklund, and Haynie 2013; Davidsson and Honig 2003) and is a central milestone to indicate that a nascent team becomes an operating entity. Thus, it has been used as a performance indicator of how well the nascent entrepreneurial team performs. This variable is binary; if the new business received any money, income, or fees from the sale of goods or services, I coded as 1; otherwise it is coded 0.

The second outcome variable is *team disbanding* which measures whether the business discontinues its start-up activities. PSED data categorizes the current status of the focal business into “new firm”, “active start-up”, and “quit” in each wave from wave 2. New

firms refers to the businesses that achieve profitability as mentioned above. Active start-ups means that the business has not yet achieved its initial sales but pursues start-up activities as a nascent business. The category of "quit" indicates that the business quits its start-up activities and drops out. Team disbanding is coded 1 if the status of the business is "quit"; otherwise it is coded 0.

Independent Variables

The primary explanatory variables are dummy variables of team types based on relational composition: family-only teams, mixed teams, and non-family teams. As explained in Chapter 3, *family-only team* is coded as 1 if the business consists only of family members; otherwise it is coded 0. Family members cover spouses, partners sharing a household, relatives living in the same household, and relatives living in different households. *Mixed team* is coded as 1 if the team is composed of both family and non-family members; if not, it is coded 0. Non-family members include friends or acquaintances from work, friends or acquaintances you (=the respondent) have not worked with, strangers before joining the new business team, and partners living in different households. *Non-family team* is coded as 1 if the team contains only non-family members; otherwise, I code it 0. As with the analysis in Chapter 3, the reference category is the *family-only team*.

Also, two variables on membership change are used as moderators in the models: *member exit* and *member entry*. Both are dummy variables. If any founder withdraws from the team, *member exit* is coded as 1; if not, I code it 0. *Member entry* is coded as 1 if any new owner is added in the team; otherwise, it is coded 0. These two variables are dependent variables from the previous chapter, so that detailed information is displayed in Chapter 3.

Control Variables

All control variables included in this study are the same as those used in Chapter 3. First, three important milestones in the development of a nascent business are controlled: *having a business plan, preparing to provide products or services,* and *having a financial projection. Having a business plan* and *having a financial projection* are binary variables; if the respondent answers "Yes", they are coded as 1 and if not as 0. *Preparing product/service* is an ordinal variable measuring the level of product/service development of the business; if the business is still in the idea stage, it is coded 1; if model/procedure is being developed in the business, it is coded 2; if prototype/procedure tested with customers, it is coded 3; if the business is completed and ready for sale or delivery, it is coded 4.

Furthermore, merit-based characteristics of founders at the team level are controlled for since the human capital component of the team is associated with team performance. Three specific types of human capital factors are included: the number of total owners is a measure of founding *team size* which is a proxy for the quantity of human capital, average years of *work experience* in the same industry where a new firm is created, and *start-up experience* – the average number of start-ups that owners have previously created. Third, the demographic characteristics at the team level are considered as control variables: the average *member age* and *member age*^{2}, *female proportion* in a team, and the *racial diversity* in a team. Additionally, I also include the variable of a two-person team in order to control for the tendency that family-only teams and non-family teams can be created by two owners, while mixed teams are formed by at least three people.

Exogenous factors that can influence venture performance are used as well: PSED

dummy, sector dummies, and year dummies. *PSED dummy* is coded 1 if the team belongs to PSED I; if the team is in PSED II, it is coded 0. *Sector dummies*[8] are identifiers of which sector/industry the team belongs to. *Region dummies*[9] and *Year dummies* are also included in the models.

Method

I employ competing-risks regression models to examine the risk of a team experiencing either venture emergence or team disbanding. This type of model is a sort of event history regression model, but it is uniquely appropriate when a competing event (or "failure" in event histor term) prevents the event of interest (e.g. venture emergence) from occurring. Since venture emergence and team disbanding are mutually exclusive oucomes for the team, the competing-risks model is more appropriate than the Cox regression model used in Chapter 3 in order to test the hypotheses events (Box-Steffensmeier and Jones 2004; Pintilie 2006); in the current research, nascent teams can move to either the stage of a venture firm or the stage of discontinuation, and a move to one outcome cancels out the possibility of a move to the other competing outcome. In other words, a competing risks framework can be employed with one type of outcome at a time, while trading the other type as censored. In this study, the dependent variable is;

[8] Sectors are differentiated into 16 categories: (1) retail store; (2) restaurant, tavern, bar, or nightclub; (3) customer or consumer service; (4) health, education or social services; (5) manufacturing; (6) construction; (7) agriculture; (8) mining; (9) wholesale distribution; (10) transportation; (11) utilities; (12) communications; (13) finance; (14) insurance; (15) real estate; (16) business consulting or service

[9] Regions are categorized into four parts: (1) West; (2) North Central; (3) North East; (4) South.

$$S_{ij} = \left\{ \begin{array}{c} 0 \text{ if team } i \text{ stays in the nascent stage in year } j \\ 1 \text{ if team } i \text{ becomes a new firm in year } j \\ 2 \text{ if team i discontinues entrepreneurship in year j} \end{array} \right\}$$

The competing risks models employ an event-specific cumulative incidence function (CIF) which is the probability (or "hazard") that a venture team in a steady state (i.e. remaining in a nascent stage) will transition into other states (i.e. either becoming a new firm or discontinuing entrepreneurial behavior). Like other event history regression models, I can capture the speed as well as the probability of event-occurrence by applying competing-risks models.

4-4. Main Findings

Table 4-1 provides descriptive statistics and correlations among the variables used in this study. Correlations of family-only team with member exit (r = -.18) and member entry (r = -.10) are noteworthy. These negative correlations are consistent with the findings in Chapter 3; teams composed of exclusively family members are the most conservative toward team turnover. Also, a positive correlation between the family-only team and the proportion of female members (r = .32), and a negative correlation between non-family team and female proportion (r = -.24) are relatively high and consistent with the results of Chapter 2.

Table 4-1. Descriptive Statistics and Correlation Table

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Venture emergence	.10	.30																	
2. Team disbanding	.11	.31	-.14																
3. Family-only team	.63	.48	.04	.01															
4. Mixed team	.08	.26	-.01	.03	-.32														
5. Non-family team	.30	.46	-.05	-.01	-.72	-.16													
6. Member exit	.04	.19	.07	-.05	-.18	.01	.00												
7. Member entry	.04	.19	.06	-.05	-.10	.09	.10	.16											
8. Having business plan	.71	.45	.03	-.04	-.05	.03	.03	.02	.03										
9. Preparing product/service	3.0	1.1	.16	-.07	.04	-.01	-.05	.03	.04	.10									
10.Having financial projection	.49	.5	.14	-.04	-.05	.04	.05	.00	.07	.26	.25								
11. Number of total owners	2.3	.92	.01	.02	-.15	.43	.18	-.12	.27	.05	.00	.14							
12. Two-person team	.69	.46	.00	.00	.52	-.37	-.11	-.19	-.12	-.07	.01	-.10	-.47						
13. Years of work experience (average)	8.0	8.2	.11	-.06	-.09	.01	.00	.08	.03	.09	.08	.09	-.05	-.08					
14. Start-up experience (average)	1.1	2.4	.02	-.01	-.11	.03	.08	.04	-.00	.09	.07	.13	.05	-.12	.14				
15. Member age	43.5	11.4	.01	-.03	.09	.02	-.15	.02	-.04	.03	.10	.08	-.03	-.01	.36	.19			
16. Member age^2	2022	1036	.01	-.04	.07	.01	-.14	.02	-.04	.03	.09	.08	-.03	-.02	.36	.18	.99		
17. Female proportion	.39	.30	-.02	.03	.32	-.03	-.24	-.07	-.06	-.05	-.01	-.06	-.03	.17	-.12	-.06	.07	.05	
18. Racial diversity	.72	.41	-.01	-.02	-.09	.08	.14	-.04	.05	.05	.02	.04	.17	-.06	.01	.00	-.08	-.08	-.05

Table 4-2 presents the results of testing the hypotheses related to venture emergence (reaching profitability), while models related to team disbanding are shown in Table 4-3. These results are based on the analyses of a full sample composed of nascent venture teams with two or more members. Additional models analyzing the sub-sample of three or more member teams are presented in the Appendix. Model 1 both in Table 4-2 and 4-3 are baseline models including the main independent variables on the team's relational composition, namely family-only team, mixed team, and non-family team, and the controls (Hypotheses 4-1a/b and 4-2a/b). Model 2 adds the variables on team turnover, member exit and member entry. Model 3 and 4 are for identifying whether team turnover moderate the effect of the relational composition on venture emergence (Hypotheses 4-3a/b/c/d, and 4-4a/b/c/d). Model 5 are the full model includes all the interaction terms and controls. In the models in Tables 4-2 and 4-3, a positive coefficient means that a particular variable increases the predicted hazard of the outcome, whereas a negative coefficient shows a decreased hazard of the outcome. However, the effect size of coefficients in competing-risks models cannot be simply and intuitively interpreted so that the figures show the predicted cumulative incidence of the outcomes varying by independent variables (Almandoz and Tilcsik 2016).

Table 4-2. Coefficients for Competing-Risks Models Predicting Venture Emergence

D.V: Venture Emergence	Model 1 Coef. (S.E.)	Model 2 Coef. (S.E.)	Model 3 Coef. (S.E.)	Model 4 Coef. (S.E.)	Model 5 Coef. (S.E.)
Mixed team [a]	-.35(.34)	-.34 (.34)	-.27 (.31)	-.36 (.34)	-.25 (.31)
Non-family team [a]	-.46** (.18)	-.49** (.18)	-.51** (.18)	-.47* (.19)	-.45* (.19)
Member exit		.54 (.32)	.27 (.34)	.68 (.43)	.32 (.48)
Member entry		.56* (.23)	.75*** (.21)	.60* (.28)	.97*** (.24)
Mixed team × Member exit			2.0*** (.54)		2.0** (.63)
Mixed team × Member entry			-2.4** (.83)		-2.7** (.86)
Non-family team × Member exit				-.34 (.63)	.05 (.68)
Non-family team × Member entry				-.07 (.44)	-.54 (.42)
Having a business plan	-.19 (.16)	-.20 (.16)	-.21 (.16)	-.20 (.16)	-.21 (.16)
Preparing product/service	.46*** (.07)	.46*** (.07)	.46*** (.07)	.46*** (.08)	.46*** (.07)
Having a financial projection	.59*** (.15)	.59*** (.15)	.59*** (.15)	.59*** (.15)	.60*** (.15)
N. of total owners (Team size)	.08 (.08)	.04 (.07)	.15† (.09)	.04 (.07)	.17† (.09)
Two person team	.11 (.21)	.10 (.21)	.29 (.24)	.11 (.21)	.32 (.24)
Years of work experience	04*** (.01)	04*** (.01)	04*** (.01)	.04*** (.01)	.04*** (.01)
Start-up experience	.00 (.02)	.01 (.02)	.01 (.02)	.01 (.02)	.01 (.02)
Member age	.00 (.05)	.00 (.05)	-.01 (.05)	.00 (.05)	-.01 (.05)
Member age^2	.00 (.00)	.00 (.00)	00 (.00)	.00 (.00)	.00 (.00)
Female proportion	-.24 (.24)	-.20 (.24)	-.19 (.24)	-.21 (.24)	-.19 (.24)
Racial diversity	-.21(.27)	-.19 (.27)	-.17 (.27)	-.19 (.27)	-.16 (.27)
PSED dummy	Included	Included	Included	Included	Included
Region dummies	Included	Included	Included	Included	Included
Sector dummies	Included	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included	Included
N [b]	4,465	3,628	3,628	3,628	3,628
Cluster (Number of Team) [c]	967	939	939	939	939
Log pseudo-likelihood	-3097.9	-3089.7	-3083.5	-3070.6	-3063.1

[a] The reference category is "family-only team"

[b] N= the number of team-years (the unit of observation) [c] Cluster= the number of teams

Robust standard errors are adjusted for clustering by team ID, and are in parentheses.
† p < .10 * p <.05 ** p <.01 *** p <.001

A key finding from Models 1 and 2 in Table 4-2 is that non-family teams significantly decrease the hazard of achieving profitability in comparison with family-only teams. Mixed teams also have a negative coefficient, but this effect is not statistically significant. That is, family-only teams tend to achieve the creation of new firms faster than non-family teams, but there is no clear evidence that these have faster and better performance than mixed teams (H4-1a is partially supported, and H4-2a is not supported). Rather, the relationship between mixed teams and the likelihood of firm creation is contingent on the pattern of team turnover. About the independent effect of team turnover, Model 2 shows that member entry has a positive impact on venture creation for nascent entrepreneurial teams while member exit is not statistically significant. These results show that the new skills and resources a new member brings to the team increase the hazard of reaching profitability in nascent venture teams. As Models 3 and 5 illustrate, team turnover moderates the relationship between mixed teams and venture emergence; when a mixed team withdraws an existing member, its probability to reach profitability increases, while if it adds a new member, this probability decreases. Meanwhile, team turnover has no significant effect on the relationship between non-family teams and their likelihood of firm creation. About family-only teams, member entry significantly increases the likelihood of reaching to a profitable status; these support H4-3a, H4-3c, and H4-4c, but do not support H4-4a. There results indicate that member entry is positive for cohesive and stable teams.

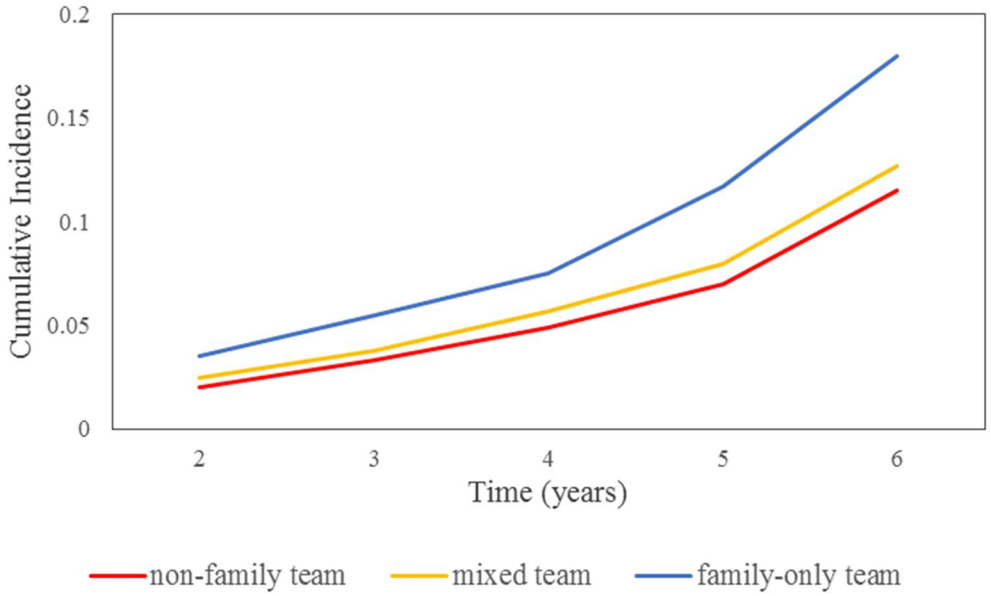
In addition, the level of product or service readiness is positively associated with venture emergence, as shown in all Models. Similarly, teams with a financial projection are

more likely and more quick to achieve venture creation. These are important milestones for nascent businesses to become operating entities. Teams achieving these milestones are more likely to shorten the time needed to reach profitability. Also, teams composed of members with longer work experience on average tend to succeed in the creation of new firms; results indicate that founders' industry-specific knowledge significantly increases the performance of start-up teams.

To help interpret the results, Figures 4-1, 4-2, 4-3, 4-4, and 4-5 present the estimates of competing-risks models to illustrate how the predicted cumulative incidences function (CIF) of venture emergence and team disbanding vary both by a team's relational composition and by interaction terms between relational composition and membership change. CIF can control for the influence of competing risks; by using this method, the occurrence of the competing risk event is not considered as a censored event, but the riskset is adjusted by the occurrence of this competing risk (Fine and Gray 1999).

Figure 4-1 plots the cumulative incidence function of venture emergence by three team types. As predicted by H4-1a, the cumulative likelihood of venture emergence is highest for family-only teams when compared to mixed teams and non-family teams, and such differences increase year by year as well. However, there is no distinctive difference between mixed teams and non-family teams.

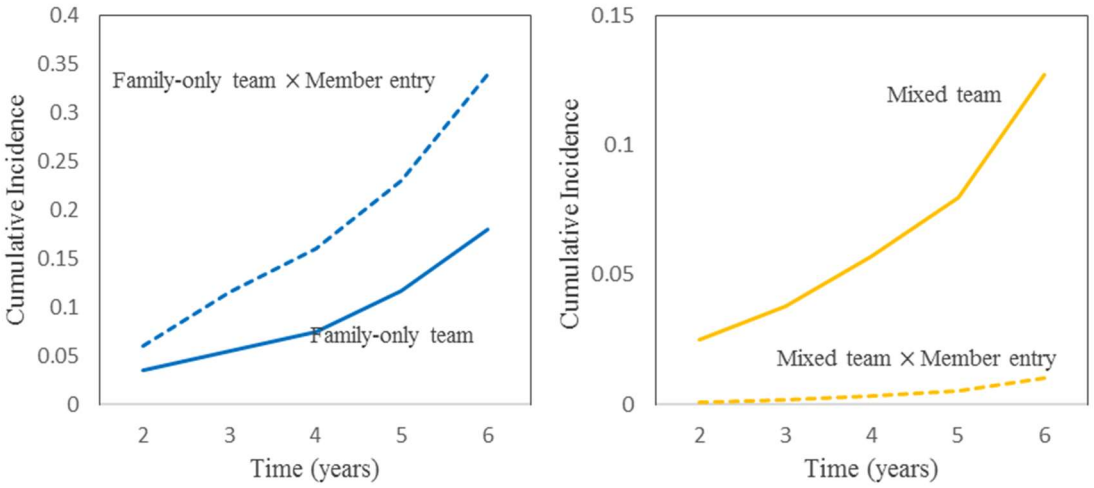
Figure 4-1. Cumulative Incidence Function of Venture Emergence: Family-only, Mixed, and Non-family teams.



Note: Three lines plot the cumulative probability of venture emergence conditional on the non-occurrence of this event and the non-occurrence of the competing event (team disbanding) to this point. The blue line represents family-only teams, the yellow line represents mixed teams, and the red line represents non-family teams. This function is plotted from Model 5 (full model) in Table 4-2.

Figure 4-2 illustrates the CIFs of venture emergence for family-only teams and mixed teams, and by their interaction terms with member entry. As depicted in Figure 4-2, when family-only teams import a new member, the cumulative incidence is far above that when those teams do not experience member entry (H4-3a is supported). On the other hand, the CIF when mixed teams add a new member is far below when they do not (H4-3c is supported). From these results, we can infer that new member entry increases the occurrence of venture emergence for family-only teams while it decreases for mixed teams.

Figure 4-2. Cumulative Incidence Function of Venture Emergence for Family-only and Mixed Teams: Interaction with Member Entry

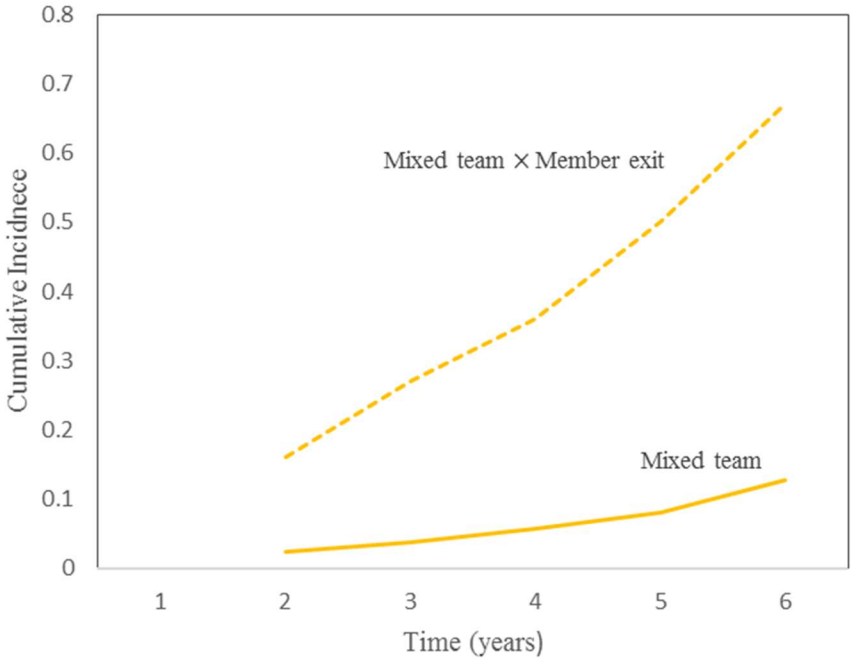


<Family-only teams> <Mixed teams>

Note: The blue lines represent family-only teams, and the yellow lines represent mixed teams. The solid lines indicate CIFs of venture emergence for the team types and the dotted lines indicate those for the interaction terms between the team types and member entry. These functions are plotted from Model 5 (full model) in Table 4-2.

Figure 4-3 shows the CIF of venture emergence for mixed teams by the interaction with member exit. Unlike member entry, CIF when mixed teams experience the departure of an existing member is much higher that the CIF when those teams do not (H4-4c is supported), and also this difference increases over time. One half of mixed teams that drop an exiting founder in their nascent stage become new firms within 4 years. This is a clear sign that member exit increases the hazard of venture emergence for mixed teams.

Figure 4-3. Cumulative Incidence Function of Venture Emergence for Mixed Teams: Interaction with Member Exit



Note: The solid line indicates CIFs of venture emergence for mixed teams and the dotted line indicates that for the interaction term between mixed teams and member exit These functions are plotted from Model 5 (full model) in Table 4-2.

Table 4-3 shows the coefficients for competing-risks models that predict another dependent variable: team disbanding. Model 1 shows that mixed teams have signifcantly higher hazard for team disbanding than family-only teams. Non-family teams show no significant difference in the hazard rate for venture failure from family-only teams at the the nascent stage. The positive association between mixed teams and team disbanding is consistent across models. The independent effects of member exit and member entry are presented in Model 2. Both variables on membership change are negatively associated with team failure; both member exit and entry decrease the hazard of team disbanding of nascent entrepreneurial teams.

Table 4-3. Coefficients for Competing-Risks Models Predicting Team Disbanding

D.V: Team Disbanding	Model 1	Model 2	Model 3	Model 4	Model 5
	Coef. (S.E.)	Coef. (S.E.)	Coef. (S.E.)	Coef. (S.E.)	Coef. (S.E.)
Mixed team [a]	.33* (.17)	.33* (.17)	.33* (.17)	.34* (.16)	.34* (.16)
Non-family team [a]	-.06 (.11)	-.04 (.11)	-.04 (.11)	-.05(.12)	-.06 (.12)
Member exit		-1.4 (.88)	-1.3 (.88)	-1.3 (.84)	-.98 (.91)
Member entry		-.82** (.31)	-.83* (.35)	-1.3* (.56)	-1.9* (.93)
Mixed team × Member exit			-19.3*** (.81)		-19.6*** (1.0)
Mixed team × Member entry			.05 (.80)		1.1 (1.2)
Non-family team × Member exit				-.24 (1.3)	-.56 (1.3)
Non-family team × Member entry				.90 (.67)	1.5 (1.0)
Having a business plan	-.13 (.10)	-.12 (.09)	-.12 (.09)	-.11 (.09)	-.11 (.10)
Preparing product/service	-.11*** (.03)	-.10** (.03)	-.10** (.03)	-.10** (.03)	-.10** (.03)
Having a financial projection	-.23* (.09)	-.23* (.09)	-.23* (.09)	-.23* (.09)	-.24* (.09)
N. of total owners (Team size)	-.08 (.07)	-.06 (.08)	-.06 (.08)	-.05 (.08)	-.07 (.08)
Two person team	-.14 (.14)	-.16 (.16)	-.16 (.16)	-.14 (.16)	-.17 (.16)
Years of work experience	-.01† (.01)	-.01† (.01)	-.01† (.01)	-.01† (.01)	-.01† (.01)
Start-up experience	.00 (.01)	.00 (.01)	.00 (.01)	.00 (.01)	.00 (.01)
Member age	.01 (.02)	.01 (.02)	.01 (.02)	.01 (.02)	.01 (.02)
Member age^2	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
Female proportion	.06 (.17)	.02 (.17)	.02 (.17)	.02 (.18)	.02 (.18)
Racial diversity	-.13 (.17)	-.14 (.17)	-.14 (.17)	-.14 (.17)	-.15 (.17)
PSED dummy	Included	Included	Included	Included	Included
Region dummies	Included	Included	Included	Included	Included
Sector dummies	Included	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included	Included
N [b]	4,465	3,628	3,628	3,628	3,628
Cluster (Number of Team) [c]	967	939	939	939	939
Log pseudo-likelihood	-3885.9	-3877.6	-3877.3	-3876.8	-3876.0

[a] The reference category is "family-only team"

[b] N= the number of team-years (the unit of observation) [c] Cluster= the number of teams

Robust standard errors are adjusted for clustering by team ID, and are in parentheses.
† p < .10 * p <.05 ** p <.01 *** p <.001

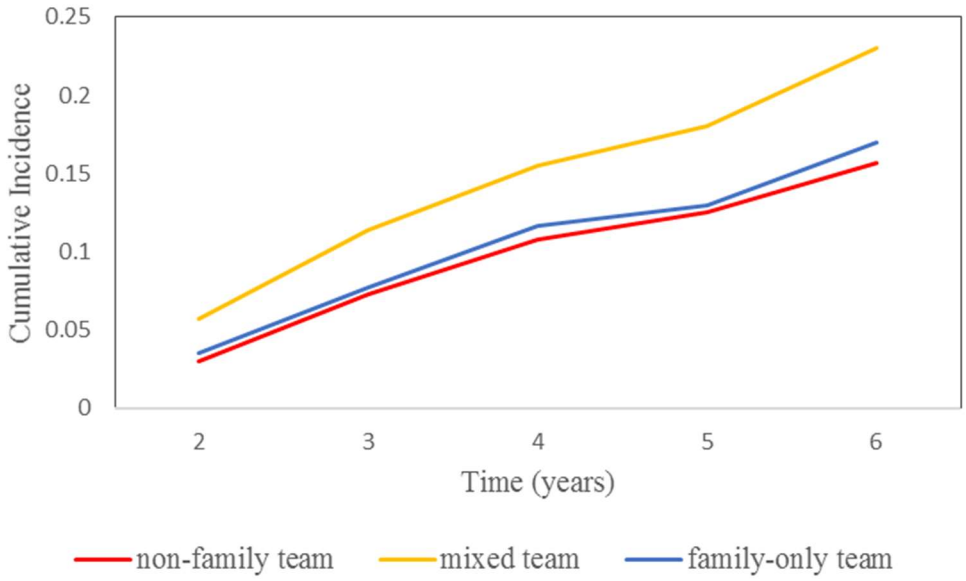
Models 3, 4, and 5 include the interaction effects between the team's relational composition and membership change. Model 3 and Model 5 show that member exit moderates the relationship between mixed teams and team disbanding; mixed teams experiencing the withdrawal of an existing member are less likely to fail. (H4-4d is supported). Meanwhile, the addition of a new member has no significant effect on the performance of mixed teams (H4-3d is not supported). For non-family teams, team turnover has no significant effect on failure rate. Finally, Model 5 shows that member exit has no influence on the team disbanding of family-only teams; on the other hand, member entry decreases the hazard of the failure of family-only teams.

Among control variables, the ones with statistical significance are similar to those in the previous analyses that predict venture emergence. Teams reaching the important milestones are less likely to fail; specifically, teams ready to prepare a product or service have the lower hazard for disbanding; also, teams with a financial projection are less likely to discontinue entrepreneurial activities. These effects consistently appear across all models. Founders' average level of work experience also decreases the likelihood of failure. This effect is also consistent with the result predicting venture emergence; industry-specific knowledge is beneficial for nascent entrepreneurial teams.

Figure 4-4 depicts the CIF of team disbanding by three types of nascent venture teams based on relational composition: family-only, mixed and non-family teams. As H4-2b predicts, the cumulative hazard rate of team disbanding is the highest for mixed teams

compared to family-only and non-family teams. On the other hand, there is no discernible difference between family-only teams and non-family teams (H4-2a is not supported).

Figure 4-4. Cumulative Incidence Function of Team Disbanding: Family-only, Mixed, and Non-family teams.



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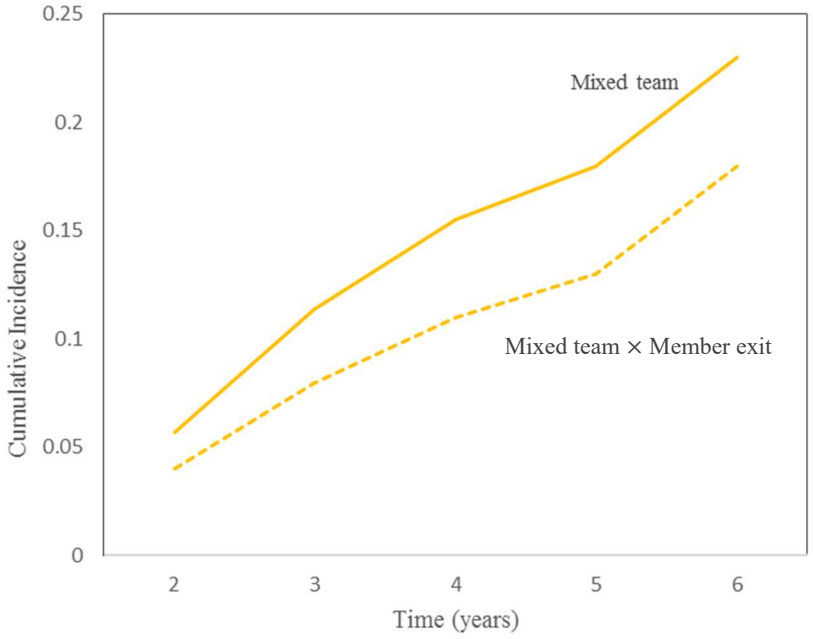
Note: Three lines plot the cumulative probability of team disbanding conditional on the non-occurrence of this event and the non-occurrence of the competing event (venture emergence) to this point. The blue line represents family-only teams, the yellow line represents mixed teams, and the red line represents non-family teams. This function is plotted from Model 5 (full model) in Table 4-3.

Figure 4-5 presents the CIF of team disbanding for mixed teams that vary by their interaction effect with the departure of an existing founder. As shown, the CIF when mixed teams experience member exit is much lower than the cumulative hazard when these teams do not drop an exiting member. The inference here is that member withdrawal significantly decreases the occurrence of team disbanding for mixed teams (H4-4d is supported).

Figure 4-5. Cumulative Incidence Function of Team Disbanding for Mixed Teams: Interaction with Member Exit



Note: The solid line indicates CIF of team disbanding for mixed teams and the dotted line indicates CIF of team disbanding when the interaction term between mixed teams and member exit is included. These functions are plotted from Model 5 (full model) in Table 4-3.

4-5. Conclusion and Discussion

This study suggests that the relational composition of an entrepreneurial team is an important, but often overlooked, determinant of venture outcomes. Unlike exiting work teams, venture teams are formed by preexisting social ties; entrepreneurs often create venture teams with their spouses, kin, friends, or prior work-related acquaintances. These different types of social ties have different relationship strength and quality, so that a team's relationship-based composition can influence the ways of interaction, communication, and

collaboration among team members. In other words, the relational composition of a start-up team is closely associated with team effectiveness and teamwork which are directly linked to venture performance. Also, the initial combination of social relationships among owners can have a lasting impact on team processes and outcomes. In this regard, this research illuminates the role of relational composition in the performance outcomes of nascent venture teams.

This study follows the traditional distinction of social ties between family versus non-family members because family ties have distinctive characteristics from other types; family members are bound by the highest level of trust and loyalty and have the same norms and values from a shared every-day-history over a long time. However, this study is novel in separating mixed teams composed of both family and non-family members as a unique category, while prior studies mainly focus on the difference of family members or family firms from non-family ones. With a conceptual framework that focuses on the social aspect of teams, especially on team cohesion and conflict/faultlines, this study examines whether three types of teams, namely family-only, mixed, and non-family teams, influence venture outcomes differently. Furthermore, it considers the interaction between a team's relational composition and membership change as well as its independent effect, since membership change/team turnover can influence team processes over time.

Since this study investigates entrepreneurial founder teams at the nascent stage, two performance indicators of nascent teams are examined: venture emergence (success) and team disbanding (failure). Nascent entrepreneurial teams become ventures if they achieve operating status to depart from the nascent stage. On the other hand, they can discontinue entrepreneurial activities when they keep underperforming as nascent businesses. Since two

performance outcomes are mutually exclusive (success vs. failure), competing-risks regression models are utilized.

To summarize the results, first of all, family-only teams tend to reach profitability faster than the other two team types; in particular, non-family teams are significantly less likely to achieve operating status than family-only teams. The strong cohesion and group-oriented cultures of family-only teams may lead to better performance in the very early stage of venture creation; the higher level of trust among members and shared norms/values promote seamless communication and effective decision-making which nurture the team's success. Further, family-only teams experiencing member entry are more likely to succeed in creating a new firm than family-only teams not adding a new member. In the case of mixed teams, member exit significantly increases the likelihood of venture emergence. It indicates that member withdrawal significantly decreases the emotional conflicts caused by the faultlines between family and non-family members in these teams; and this decreased level of conflicts is beneficial for mixed teams to succeed.

Second, mixed teams have the highest hazard rate for team disbanding; these teams are more likely to fail than family-only and non-family teams. Friction and conflicts within mixed teams may hinder communication and collaboration among team members. Hence the deteriorated teamwork of mixed teams may lead to poor performance. Consistently, member exit significantly decreases the likelihood of failure in mixed teams. While member entry has no significant influence both on mixed teams and on non-family teams, family-only teams bringing a new member on board are significantly less likely to disband in comparison with family-only teams not experiencing member entry.

Among control variables, being ready to prepare a product/service and having a

financial projection are significantly beneficial for nascent venture teams to produce better performance; these increase the likelihood of venture emergence and decrease the hazard of team disbanding. However, the factors that were statistically significant on membership change – team size and female proportion – have no significant association with performance.

Overall, the results indicate that team compositional aspects are strong predictors for venture performance of nascent entrepreneurial teams. In general, the findings suggest that family-only teams are the most effective composition to reach profitability in the very early stage of firm creation while mixed teams are the riskiest composition and prone to fail. Furthermore, member entry is beneficial for family-only teams while member exit is beneficial for mixed teams. These findings indicate that the addition of a new member is advantageous in cohesive teams and the withdrawal of an existing member is advantageous in teams with relationship conflicts.

This research makes some important contributions to the literature. First, this research sheds light on social rather than economic aspects of venture team composition as an important determinant of business performance. In particular, this study suggests a novel typology by separating mixed teams as a distinctive category of the relational composition, and it examines whether and how these compositional types of teams have an effect on venture performance. While prior studies found the strengths (i.e. trust, stewardship) and/or the weaknesses (i.e. risk aversion) of family entrepreneurial teams compared to non-family teams, this study reveals new findings by employing this new typology. Specifically, I find that mixed teams are likely to be the vulnerable type at the nascent stage of venture creation; salient faultlines between family and non-family subgroups breed emotional conflict that can

negatively influence team performance. These faultlines entail the divide of in-group/out-group within one team that result in negative consequences on team performance (Thatcher and Patel 2012).

Second, this study provides an evidence that for start-up teams in the nascent stage, the family-only type is the most successful relational composition; it indicates that team cohesion is beneficial for nascent venture teams to succeed. Although a significant number of studies have found that team cohesion is positively associated with the performance of new venture teams (e.g. Ensley and Pearce 2001; Ensley et al. 2003; Chowdhury 2005), they have mainly focused on the new businesses at inception. And little is known about the nascent stage. Nascent periods entail the liability of newness (Stinchcombe 1965), a greater risk of failure than older firms because new organizations lack resources and legitimacy. In these periods with high risk, team cohesion may become a critical factor for team success; strong bonds among team members enable more effective teamwork with a positive influence on venture performance.

Third, this research finds that membership change moderates the relationship between a team's relational composition and start-up performance. Prior studies have provided evidence that team turnover impacts firm outcomes. For instance, Chandler, Honig, and Wiklund (2005) found that the positive effect of member exit becomes stronger for venture teams at later stages of development. Also, Beckman, Burton, and O'Reilly (2007) found that member entry, especially with diverse backgrounds, increases chances for high-technology firms reach IPO. While these studies successfully documented the relationship between team turnover and business outcomes, they mainly focused on whether membership change is good or bad for venture teams. However, this study investigates when membership

change is good or bad and for whom. Its findings indicate that for teams with faultlines, member exit is beneficial for performance, while for cohesive teams, member entry is more beneficial.

Despite distinct contributions of this research, there is much left to do. Additional research is needed to explore how this relational component of team formation and its interaction with team turnover determine firm performance in post-nascent periods. In these periods, start-up firms need different human and social capital from in the nascent stage. For instance, compared to the nascent stage, firms may require skills or social ties that facilitate and develop the relationships with external actors, such as strong suppliers, creditors, and customers. In this case, a founder team composed only of family members may suffer from redundant information, ideas, and skill-sets (Burt 1992; Granovetter 1985) in the later stages; family members share extremely similar backgrounds so that there is a higher probability of overlap in human and social capital.

Furthermore, additional research is also needed to compare the performance outcomes of mixed teams to those of non-family teams and family-only teams in post-nascent periods. Both teams include non-family members who can contribute their non-redundant ideas and diverse skills that are needed in the later stage of start-up firms. For example, on the one hand, mixed teams can be more advantageous to achieve better performance because they have both bonding capital (from family members) and bridging capital (from non-family members). Too much bonding capital may limit the out-of-the-box thinking of members and, thus decrease the adaptability of organizations, while too much bridging capital can create a less stable basis for consistent guidance, support, and identity among members (Woolcock 2001). Entrepreneurs may strike a balance between cohesion

and diversity to obtain preferential access to resources and customers, while maintaining diverse sources of information and market opportunities (Martinez and Aldrich, 2011); a balance between bonding and bridging may increase the profitability of entrepreneurial teams. On the other hand, as with the finding of this research, mixed teams keep suffering from the higher level of conflict and faultlines that can be harmful to team effectiveness in the post-nascent stage as well.

APPENDIX

In an attempt to identify potential biases caused by the team size in main analysis, I run additional models. Table 4-A and Table 4-B present the results with the sub-sample of teams composed of three or more member teams. As mentioned, since the majority of family-only teams and the significant number of non-family teams are dyads, the total number of sub-sample significantly decreases. As shown in Table 4-A, the directions of coefficients are consistent with the main results (Table 4-2). However, the negative effect of non-family team on venture emergence which is statistically significant in the main analysis lose its significance. Also, member exit still makes mixed teams at nascent stages generate profit faster but its statistical significance disappears in the sub-sample analysis. Conversely, the positive effect of member entry on venture emergence in the main analysis is also reported in Table 4-A. Negative impact of new member entry for mixed teams to generate profit is consistent and significant in the sub-sample analysis.

Table 4-A. Coefficients for Competing-Risks Models Predicting Venture Emergence (sub-sample; three or more member teams)

D.V: Venture Emergence	Model 1	Model 2	Model 3	Model 4	Model 5
	Coef. (S.E.)	Coef. (S.E.)	Coef. (S.E.)	Coef. (S.E.)	Coef. (S.E.)
Mixed team [a]	-.65 (.33)*	-.69 (.32)*	-.38 (.31)	-.68 (.32)*	-.33 (.33)
Non-family team [a]	-.55 (.37)	-.57 (.34)†	-.59 (.34)†	-.70 (.40)†	-.49 (.41)
Member exit		.43 (.47)	.43 (.49)	.17 (.54)	-.09 (.77)
Member entry		.74 (.31)*	1.1 (.31)***	.61 (.39)	1.5 (.35)***
Mixed team × Member exit			1.4 (.96)		2.0 (1.2)
Mixed team × Member entry			-2.9 (1.0)**		-3.2 (1.1)**
Non-family team × Member exit				.59 (.80)	.93 (.97)

Non-family team × Member entry				.37 (.59)	-.61 (.57)
Having a business plan	.00 (.33)	.07 (.35)	-.01 (.36)	.05 (.35)	-.02 (.35)
Preparing product/service	.39 (.14)**	.36 (.13)**	.35 (.14)**	.36 (.13)**	.35 (.13)**
Having a financial projection	.68 (.34)*	.60 (.33)†	.69 (.32)	.62 (.33)†	.68 (.33)*
N. of total owners (Team size)	.00 (.09)	-.05 (.09)	.06 (.10)	-.05 (.09)	.07 (.10)
Years of work experience	.01 (.02)	.01 (.02)	.01 (.02)	.01 (.02)	.01 (.02)
Start-up experience	.02 (.02)	.03 (.02)	.03 (.02)*	.03 (.02)	.03 (.02)
Member age	.27 (.48)	.26 (.48)	.05 (.08)	.05 (.08)	.04 (.08)
Member age^2	.04 (.08)	.04 (.08)	.00 (.00)	.00 (.00)	.00 (.00)
Female proportion	.00 (.00)	.00 (.00)	.45 (.51)	.31 (.49)	.47 (.52)
White proportion	.12 (.35)	.13 (.36)	.07 (.36)	.13 (.36)	.05 (.36)
PSED dummy	Included	Included	Included	Included	Included
Region dummies	Included	Included	Included	Included	Included
Sector dummies	Included	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included	Included
N [b]	1,104	899	899	899	899
Cluster (Number of Team) [c]	275	256	256	256	256
Log pseudo-likelihood	-601.1	-596.6	-590.3	-595.9	-589.5

[a] The reference category is "family-only team"

[b] N= the number of team-years (the unit of observation) [c] Cluster= the number of teams

Robust standard errors are adjusted for clustering by team ID, and are in parentheses.

† p < .10 * p <.05 ** p <.01 *** p <.001

Table 4-B shows the sub-sample analysis predicting team failure. Like Table 4-A, the results presented in Table 4-B report consistent findings with the main analysis (Table 4-3). However, the significant positive effect of mixed teams on team disbanding disappears in the sub-sample analysis; this may be caused by the decreased number of reference category, family-only teams. Furthermore, compared to the main analysis, interestingly, member exit-

related variables lose statistical significance while member entry-related variables gain it. In the sub-sample analysis, the tendency in which new member addition significantly accelerates the speed and the probability of failure for mixed teams and non-family teams prevails.

Table 4-B. Coefficients for Competing-Risks Models Predicting Team Disbanding (sub-sample; three or more member teams)

D.V: Venture Emergence	Model 1 Coef. (S.E.)	Model 2 Coef. (S.E.)	Model 3 Coef. (S.E.)	Model 4 Coef. (S.E.)	Model 5 Coef. (S.E.)
Mixed team [a]	.10 (.20)	.07 (.20)	.06 (.20)	.07 (.20)	.01 (.20)
Non-family team [a]	-.32 (.21)	-.33 (.21)	-.33 (.21)	-.38 (.22)†	-.42 (.22)*
Member exit		-20.5 (.30)***	-16.5 (.38)***	-20.4 (.45)***	-14.8 (.77)***
Member entry		-.86 (.40)*	-.94(.49)†	-1.4 (.71)*	-15.6 (.41)***
Mixed team × Member exit			-.07 (.65)		-.25 (.94)
Mixed team × Member entry			.26 (.88)		15.0 (.82)***
Non-family team × Member exit				-.22 (.62)	-.30 (.88)
Non-family team × Member entry				1.0 (.86)	15.2 (.59)***
Having a business plan	-.23 (.21)	-.24 (.21)	-.24 (.21)	-.24 (.21)	-.23 (.21)
Preparing product/service	-.12 (.07)†	-.09 (.07)	-.09 (.07)	-.09 (.07)	-.08 (.07)
Having a financial projection	-.38 (.17)*	-.37 (.17)*	-.37 (.17)*	-.38 (.17)*	-.40 (.17)*
N. of total owners (Team size)	-.10 (.08)	-.06 (.10)	-.07 (.10)	-.05 (.10)	-.07 (.09)
Years of work experience	.00 (.01)	.00 (.01)	.00 (.01)	.00 (.01)	.00 (.01)
Start-up experience	-.01 (.02)	-.02 (.02)	-.02 (.02)	-.02 (.02)	-.02 (.02)
Member age	.06 (.06)	.06 (.06)	.06 (.06)	.06 (.06)	.06 (.06)
Member age^2	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
Female proportion	-.16 (.31)	-.18 (.31)	-.18 (.31)	-.19 (.31)	-.22 (.30)
White proportion	.31 (.23)	.31 (.23)	.31 (.23)	.32 (.23)	.33 (.23)
PSED dummy	Included	Included	Included	Included	Included
Region dummies	Included	Included	Included	Included	Included
Sector dummies	Included	Included	Included	Included	Included

Year dummies	Included	Included	Included	Included	Included
N [b]	1,104	899	899	899	899
Cluster (Number of Team) [c]	275	256	256	256	256
Log pseudo-likelihood	-811.5	-805.7	-805.6	-805.0	-803.5

[a] The reference category is "family-only team"

[b] N= the number of team-years (the unit of observation) [c] Cluster= the number of teams

Robust standard errors are adjusted for clustering by team ID, and are in parentheses.

† p < .10 * p <.05 ** p <.01 *** p <.001

I also perform additional analysis in order to identify whether the use of the combined dataset composed different samples causes potential bias. Table 4-C presents the results predicting venture emergence with stratified PSED I (Model 1) and PSED II (Model 2) samples, and the result with the combined sample (Model 3) of both databases. Final model (Model 4) illustrates the results with the pooled sample including the interaction effects of PSED with the main independent variables to test for modification effect and to compare them to the stratified analysis.

Table 4-C. Coefficients for Competing-Risks Models Predicting Venture Emergence (stratified analysis: PSED I, PSED II, and pooled sample)

D.V: Venture Emergence	Model 1 (PSED I)	Model 2 (PSED II)	Model 3 (pooled)	Model 4 (pooled) Interaction
	Coef. (S.E.)	Coef. (S.E.)	Coef. (S.E.)	Coef. (S.E.)
Mixed team [a]	-.08 (.35)	-.36 (.45)	-.26 (.31)	-.42 (.35)
Non-family team [a]	-.23 (.17)	-.61 (.30)*	-.37 (.19)*	-.37 (.19)*
Member exit	1.0 (.67)	.50 (.53)	.24 (.47)	.35 (.48)
Member entry	1.0 (.35)**	1.1 (.30)***	1.0 (.23)***	.99 (.24)***
Mixed team × Member exit	.32 (1.9)	1.9 (.70)**	1.8 (.62)**	1.8 (.65)**
Mixed team × Member entry	-2.3 (1.4)	-2.2 (.96)*	-2.4 (.82)**	-2.5 (.89)**

Non-family team × Member exit	1.3 (.90)	-1.3 (1.5)	.13 (.71)	.10 (.70)
Non-family team × Member entry	-.73 (.57)	.09 (.73)	-.40 (.42)	-.63 (.44)
Mixed team × PSED II				.21 (.49)
Non-family team × PSED II				-.16 (.32)
Having a business plan	-.30 (.16)†	-.05 (.31)	-.28 (.16)†	-.20 (.16)
Preparing product/service	.48 (.11)***	.42 (.11)***	.43 (.08)***	.45 (.08)***
Having a financial projection	.43 (.17)*	.65 (.22)**	.65 (.15)***	.60 (.15)***
N. of total owners (Team size)	.07 (.11)	.25 (.32)	.18 (.10)†	.13 (.10)
Two-member team dummy	.27 (.29)	.32 (.59)	.30 (.26)	.24 (.25)
Years of work experience	.02 (.01)*	.05 (.01) ***	.04 (.01)***	.04 (.01)***
Start-up experience	.02 (.01)	-.02 (.07)	.02 (.01)	.01 (.02)
Member age	-.05 (.05)	-.03 (.07)	-.01 (.05)	-.02 (.05)
Member age^2	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
Female proportion	.20 (.22)	-.59 (.43)	-.08 (.25)	-.20 (.25)
White proportion	.41 (.17) *	.24 (.31)	.22 (.18)	.31 (.18)†
PSED dummy	-	-	Included	Included
Region dummies	Included	Included	Included	Included
Sector dummies	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included
N [b]	1225	2380	3605	3605
Cluster (Number of Team) [c]	429	508	937	937
Log pseudo-likelihood	-1089.5	-1718.0	-3080.7	-3059.1

[a] The reference category is "family-only team"
[b] N= the number of team-years (the unit of observation) [c] Cluster= the number of teams
Robust standard errors are adjusted for clustering by team ID, and are in parentheses.
† p < .10 * p <.05 ** p <.01 *** p <.001

As shown in Table 4-C, there is no substantive differences are observed in the predictors of venture emergence among two stratified and the pooled analyses. When interpreting stratified analyses, the effect size and/or the significance level of the association cannot be directly compared. Therefore, to test for modification effect, I have to rely on the

interaction terms. As Model 4 shows, the interaction effects are not significant; it means that the effects of mixed teams and non-family teams on profit-generation for PSED I are not significantly different from those effects for PSED II. Therefore, the results from the main analysis (Table 4-2) are consistent across the datasets and are less likely to be biased by the difference in samples.

Table 4-D. Coefficients for Competing-Risks Models Predicting Team Disbanding (stratified analysis: PSED I, PSED II, and pooled sample)

D.V: Team Disbanding	Model 1 (PSED I)	Model 2 (PSED II)	Model 3 (pooled)	Model 4 (pooled) Interaction1
	Coef. (S.E.)	Coef. (S.E.)	Coef. (S.E.)	Coef. (S.E.)
Mixed team [a]	.32 (.32)	.30 (.17)†	.30 (.18)	.31 (.27)
Non-family team [a]	.15 (.20)	.00 (.11)	.00 (.12)	-.13 (.18)
Member exit	-11.8 (.83)***	-15.2 (.36)***	-13.6 (.33)***	-14.7 (.40)***
Member entry	-1.3 (.98)	-15.4 (.25)***	-1.7 (.99)†	-1.85 (.98)
Mixed team × Member exit	.77 (1.5)	.10 (.62)	-.12 (.56)	-.09 (.61)
Mixed team × Member entry	.94 (1.3)	.09 (.51)	1.0 (1.2)	.96 (1.23)
Non-family team × Member exit	11.0 (1.2)***	.74 (.48)	12.4 (1.0)***	13.5 (1.03)***
Non-family team × Member entry	1.11 (1.0)	.40 (.37)	1.5 (1.1)	1.44 (1.04)
Mixed team × PSED II				-.01 (.28)
Non-family team × PSED II				.12 (.20)
Having a business plan	-.15 (.16)	-.01 (.11)	-.23 (.10)*	-.12 (.09)
Preparing product/service	-.14 (.05)*	-.10 (.04)*	-.13 (.04)***	-.11 (.03)***
Having a financial projection	-.55 (.16)***	-.07 (.10)	-.11 (.10)	-.23 (.09)*
N. of total owners (Team size)	.15 (.12)	.27 (.14)*	.04 (.09)	-.03 (.09)
Two-member team dummy	-.37 (.27)	.43 (.25)†	.00 (.19)	-.10 (.18)
Years of work experience	-.01 (.01)	-.01 (.01)	-.01 (.01)	-.01 (.01)
Start-up experience	.00 (.02)	.03 (.04)	.01 (.01)	.00 (.01)
Member age	.10 (.06)	-.06 (.02)*	.02 (.03)	.01 (.02)

Member age^2	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
Female proportion	.20 (.31)	.09 (.17)	.16 (.18)	-.01 (.18)
White proportion	.02 (.18)	.39 (.14)**	.11 (.13)	.19 (.12)
PSED dummy	-	-	Included	Included
Region dummies	Included	Included	Included	Included
Sector dummies	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included
N [b]	1225	2380	3605	3605
Cluster (Number of Team) [c]	429	508	937	937
Log pseudo-likelihood	-1089.5	-1718.0	-3080.7	-3840.7

[a] The reference category is "family-only team"

[b] N= the number of team-years (the unit of observation) [c] Cluster= the number of teams

Robust standard errors are adjusted for clustering by team ID, and are in parentheses.

† p < .10 * p <.05 ** p <.01 *** p <.001

Table 4-D reports the results estimating team disbanding with each stratified sample (Model1 & 2), and with the combined sample (Model 3). Like Table 4-C, findings for the stratified PSED I and PSED II samples are roughly equivalent to the combined sample. Also, as shown in Model 4, the interaction effects of two independent variables (mixed teams and non-family teams) on team failure for PSED I are not significantly different from those for PSED II.

CHAPTER 5.

CONCLUSION

Venture teams are autonomous groups composed of individuals who already know each other. Thus, the formation and composition of these teams inevitably rely on pre-existing social ties such as spouses, relatives, friends, and colleagues. In spite of its importance, relational composition has been overlooked in entrepreneurship literature. This dissertation focuses on this relational composition of venture teams and examines it both as an output determined by other factors, and an input which shapes the team behavior and outcomes, in three studies. In the first one (Chapter 2), I investigate the formation and relational composition of venture teams with specific attention to the role of gender since the structure and patterns of an individual's social network vary based on gender. The results indicate that females are more likely to form a venture team with their spouses and/or relatives, while males tend to have more diverse partners. In a structural sense, females have more limited and family-dominated networks than do males. Also, females prefer family members who are the strongest type of social ties to weak ties, when compared to males. Additional analysis provides the evidence that female entrepreneurs especially lack work-related partners. It is inferred that females have limited experience in, or are marginalized from workplaces before they launch their own businesses.

In Chapter 3, I explore whether and how the relational composition impacts membership change. Previous studies have mainly considered membership change as a group's strategic behavior for better performance. However, as a team's structure, its relational composition influences communication, collaboration, and agreement for

decision-making among founders. Thus, the relational composition is directly associated with team cohesion and within-group conflict which can impact team turnover. By focusing on the extent of family affiliations in entrepreneurial founder teams, I introduce a new team typology that represents the relational composition: family-only teams, mixed teams, and non-family teams. Moreover, team turnover in this study distinguishes between member exit and member entry. The results suggest that family-only teams are the most stable; they have the lowest probability of member withdrawal and are also less likely to recruit a new member than mixed teams and non-family teams. The higher level of trust and team cohesion make teams more conservative to team turnover. Meanwhile, non-family teams are the most liberal type in terms of membership change. These teams are more likely to drop an existing member and to add a new one. Since non-family teams are composed of exclusively non-family members, their team culture tends to be flexible and goal-oriented rather than to be group-oriented. These liberal cultures may facilitate membership change. Finally, mixed teams have the higher likelihood of member exit but this has no discernible impact on member entry. The complicated combination of mixed teams may promote salient faultlines between family and non-family members and further breed in-group conflict. This conflict may lead to the departure of an existing founder.

In Chapter 4, I examine how the relational composition of venture teams affects performance outcomes. Furthermore, I include the interaction terms between relational composition and membership change (member exit and member entry) as explanatory variables since membership change is directly linked to teamwork and team effectiveness and these lead to team performance. As the main independent variables, the same team of typology as that in Chapter 3 is utilized: family-only teams, mixed teams, and non-family

teams. Since this study investigates venture teams at the nascent stage, I examine two performance outcomes of nascent venture teams: venture emergence and team disbanding. The results indicate that family-only teams are more likely to achieve operating status (=venture emergence) than mixed teams and non-family teams. Also member entry accelerates this superior performance of family-only teams. These results imply that the higher level of team cohesiveness is beneficial for nascent venture teams. In these cohesive teams, the addition of a new member may be advantageous to achieve first sales. On the other hand, mixed teams tend to have a higher likelihood of team disbanding than family-only teams and non-family teams. However, member withdrawal significantly decreases the hazard rate of team failure. The inference here is that the lower level of team cohesion and the higher level of conflict within mixed teams lead to underperformance. However, the departure of exiting members can decrease this higher level of conflict or disagreement so that mixed teams experiencing member exit are less likely to fail than mixed teams that do not.

This dissertation research offers three intellectual contributions to the current literature on entrepreneurship. First, this research focuses on the relational composition of venture teams which is important but has been overlooked in the previous literature. Unlike existing work teams, entrepreneurial teams are formed and developed by individuals who already have social ties to each other. Thus, the social relationships among founders may shape the ways of communication, interaction, and decision making within a team. Thus, this relational component works as a structure under which that constrains the team's behavior and performance are constrained. By shedding light on illuminating the relational composition, this research helps us to more comprehensively understand how start-up teams

behave and perform whether it lead to performance outcomes.

Second, it helps us to integrate family dimension into mainstream entrepreneurship literature by investigating social relationships between members of entrepreneurial teams. Although family affiliation has been reported to play an important role in entrepreneurial activities and family is one of the most important social relations of entrepreneurs, they are relatively understudied in the entrepreneurship literature. This keeps our understanding of entrepreneurship phenomena incomplete. By focusing on the relational composition of entrepreneurial teams, this research will not only enrich the knowledge of entrepreneurship but also stimulate further research interests and ideas. By introducing a new typology where entrepreneurial teams are classified into family-only teams, non-family teams, and mixed teams. this dissertation provides a more nuanced understanding of the critical role that family connections play in nascent businesses.

Third, this project helps us to understand entrepreneurship as a socially embedded phenomenon. Most entrepreneurial activities essentially rely on a "group" effort during the venture creation process (Ruef 2010). In this dissertation research, I argue that the formation of an entrepreneurial founding team is constrained by social conditions in which entrepreneurs are embedded. Furthermore, a venture team's behavior and outcomes are significantly influenced by the relational structure. It suggests that start-up teams' behavior is driven by structural factors as well as strategic motives. This study enriches our understanding of venture teams from founding processes to performance outcomes.

All in all, this dissertation research finds that the relational composition is an important dimension to study understand entrepreneurial teams. First, not only do the formation and composition of venture teams are constrained by pre-exiting network of

individual entrepreneurs, but Second, this relational component also has a significant impact on membership change over time. Third, performance outcomes of entrepreneurial teams are determined by the relational composition and its interaction with membership change. In particular, the combined Overall results suggest that team cohesiveness is a critical factor for venture teams. Entrepreneurial teams in their early stage operate informally so that tacit cohesion rather than formal rules and regulations is more important and influential. Future studies can extend this research by investigating the association between the relational composition and performance outcomes in the post-nascent periods. In the post-nascent periods, other factors than team cohesion can be more advantageous to venture teams. By focusing the later stage of venture teams, future research can illuminate the different dynamics and processes to determine team effectiveness from the nascent stage. This study on the relational dynamics of nascent entrepreneurial teams will serve as an important building block to further our understanding of the dynamics of entrepreneurial teams with distinct relational composition in various stages.

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